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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

THE GRAIN WORM,

Though of extremely diminutive size, threatens to become the most formidable insect enemy that we have ever had to encounter. Though scarcely preceptible, to the naked eye, such are its numbers, and such its voracity, as to destroy annually thousands, if not millions worth, of the great staple of life. And we are persuaded its ravages are not confined to the wheat crop, but that it preys upon other grains, *which come into head during the existence of the perfect insect, or fly.*

We have seen many preventives recommended, and have tried most of them without success, as various preparations of the seed, applying lime and salt and ashes, when the grain is in ear, &c. We have become convinced too of the fallacy of Bauer's theory, as noticed in the first volume of the Cultivator, that the insect is transmitted through the sap of the plant. Neither steeps nor topical applications will serve any purpose. Nothing, in our opinion, will protect us from this puny enemy, but sowing early in autumn, and late in spring—so that in the first *the grain may become indurated and hard before the fly makes its appearance*, and in the latter so that it *may not come into blossom until after the fly has disappeared* The insect has progressed from forty to sixty miles a year, south and west, and has reached Maine on the northeast.

From the observations we have been enabled to make of the habits of the insect, we think the fly makes its appearance about the last of June, and continues to deposite its eggs till the 20th or 25th July, making its principal deposites in the first half of July, when late sown autumn, and early sown spring wheat, are in the blossom or milk. Rye sown late in autumn, and oats and barley sown early in spring, are believed also to have suffered materially from the worm; but of this fact we are not yet sufficiently certified, though the worm is often found in these grains. The fly is small and slender, of an ash color, and may be seen towards evening in great numbers on the heads of the grain. It punctures the calix or envelope of the kernel, and deposites its eggs within it, upon the young grain, in the manner that the pea fly punctures the pod, and lodges its egg in the young pea, where it may be often detected when pea is gathered for the table. No topical application, whether liquid or in powder, can reach the ova or insect, within the envelope; and even if the outer surface of the grain is covered with lime, it forms no obstacle to the deposite of the eggs—indeed it has been found that the worm is not destroyed by dry lime, though rolled in it.

We sowed our Italian spring wheat on the 5th of May; and on the 15th July it began to head out. We watched it for a week or twelve days, and until we saw no more of the fly. We found on subsequent examination, that that which first came into head, had from three to five insects in an ear, while that which developed the head latest was generally perfectly sound and untouched. We have examined several fields of spring wheat in Washington county, sown from the 15th to the 23d May, without being able to find any thing of the worm, though the winter wheat there was nearly destroyed by it. These facts seem to warrant the conclusion, that if wheat is sown, in this latitude, after the 15th or 20th May, it will escape the worm.

As the subject is one of deep interest to the whole community, we are desirous of collecting all the information we can, as to the habits of the insect, the first appearance and the disappearance of the fly, the period which the insect exists in the larvæ, or maggot state, and also in the chrysalis. By collating and comparing these facts, we indulge the hope that something may be done to mitigate the evil. We invite post masters and others to aid us in the investigation, by communicating answers to either or all of the following queries:

1. In what year did the grain worm first make its appearance in your neighborhood?

2. At what time in the season was the fly first noticed, and what was its latest appearance?

3. What per cent damage has it done to the wheat crop the present year?

4. Has early sown winter wheat escaped its ravages?—and if so, at what time was it sown?

5. Has late sown spring wheat escaped its ravages?—and if so, at what time was the seed put in the ground?

6. Have barley, rye and oats been attacked by the worm?—to what extent?—and if yes, at what time were these crops severally sown, or at what time did they come in head?

7. It is believed that the insect changes from the larvæ, or maggot, to the pupa, or chrysalis state, and thence to the imago, or perfect fly; and that in the larvæ it casts its skin, like the silk worm. Can you communicate any facts in confirmation of, or in contradiction to, these suppositions?

8. What are the extreme points, west and south, where the worm was discovered in 1836, and also in 1837?

THE WHEAT CROP.

We expressed a fear in our last number that the general anticipations from the wheat crop were graduated too high. We are daily more and more confirmed in this opinion. The winter, the grain worm and the rust have seriously diminished the product in many of the best wheat districts. The prospect was uncommonly gloomy the first of May; but the season subsequently has been so very auspicious,—as to induce the public to carry their hopes too far, without making due allowance for the injury which had been done by the winter, or that which has been subsequently inflicted by the grain worm, or which has resulted from other causes. In proof of the correctness of our opinion, we give the following extracts from our private correspondence:

Chalkey Haines writes us from Demascoville, Columbiana, Ohio, that "the wheat was very much frozen out by the winter, but is better than was expected in the spring. Oats and corn look well, though the season is two weeks later than usual."

S. J. Bayard writes us from Seneca county, one of our best wheat districts, under date of August 2, as follows:

"The grain worm, or brown weevil, is doing much damage to the wheat in this and other counties in the vicinity. The *rust*, however, will injure more wheat than all other maladies whatever—whole fields are destroyed by it. The cold nights, and extraordinary humidity of the season, is probably the cause of the general prevalence of this disease. The hopes of the farmer have fluctuated much in the past season in relation to his crops. Early in the spring we thought our wheat would not be worth cutting; but in the last three months its *appearance* has greatly improved. Yet when closely examined, it is found thin in many places, and to be much injured by the worm and the rust. Take the county generally, there will not be harvested quite three-fourths of a crop of wheat. The summer crops, grain and roots, look well. My Italian spring wheat is good—as good as any winter wheat I have seen—free from the worm and rust. Very few of our farmers have yet commenced cutting their wheat. So late a harvest was never before known. The lateness of the harvest must prevent much wheat being threshed before October; or else the operation of putting in the seed for the next years crop will be interfered with."

Oliver M. Barber writes from Gaines, Orleans, under date of 9th August, as follows:

"Our spring crops bid fair for a good yield. Corn is doing better than it has done for several seasons. Our crop of wheat will be a light harvest. Some fields are entirely destroyed by rust, so that they will not be gathered at all; others by the insects and smut. I have not seen a field but is very smutty. We had a frost the night of the 6th inst. which injured the vines and leaves, and some potatoes are wholly destroyed."

Martin Gage, P. M. Benton, Yates, writes under date of August 9.—"We have just commenced harvesting our wheat. Most of it is struck with the rust. A very warm rain has commenced, and some is already beginning to grow. The crop, I apprehend, will fall far short of the general calculation, and the quality will be bad."

The Perry, Gen. paper, of August 2, states, that much of the wheat crop, in that region, is injured, if not destroyed, by the rust; and that some fields will yield but little more than half a crop, though but a few days before they promised a most abundant harvest.

Edward Wilbur writes from Pittsford, Monroe, August 10, as follows:—"I find the worm, which has been committing such ravages on the wheat crop in your section of the state, is extending its works among our fields, and I fear that one or two years more will put a stop to wheat grow-

ing in western New-York. Our wheat crop is in many instances sadly injured by the rust, and in some completely destroyed. I have one field of four acres, rich land, which promised thirty bushels an acre, but which the rust has completely destroyed, there not being a bushel on the whole lot; and on other fields I shall not have more than half or quarter of a crop. A heavy frost on the night of the 5th inst. did great damage to our crops of corn, potatoes, beans, &c. I had a field of three acres, new rich land, in the China bean, from which I expected 100 bushels, but on account of the frost, the whole will be a failure; also about three acres of promising corn, of the granite kind. The farmers prospects here have been sadly blighted by the rust and the frost."

THE CORN CROP

Looks remarkably promising, though got in late, upon all grounds adapted to its culture; and if we are not visited with early frosts, the product is likely to be more than medium. The color is uncommonly fine, and the growth has been luxuriant. There has been one peculiarity in the past season, highly beneficial to this grain. Although the mean temperature has been low, and the nights generally cool, yet we have experienced frequent refreshing showers, which, contrary to what has generally happened in other years, have been almost invariably followed by a warm or hot temperature, that gave a vigorous impetus to vegetation.—The oat and potato crops are perhaps unprecedentedly promising.

THE GRASS CROP,

Contrary to general expectation, has turned out very light, in this and many of the neighboring counties. The remark particularly applies to old meadows. This unexpected failure is ascribed to the severe winter, and to the ravages of the grub at the root.

SPRING WHEAT,

Has already superseded the winter species in Lower Canada, and in the northern section of the Union; and such are the casualties which the winter crop has to encounter, from the Hessian fly, from hard winters, and from the grain worm, for the latter, we have no doubt, will soon extend itself over the whole country, that we apprehend the farmers of the northern and middle states, at least, will soon find it advantageous to resort to the spring species of this grain for their main crop. Under this view of the subject, we think we shall be doing a service to the readers of the Cultivator by detailing what we know in relation to different species of spring wheat.

The *triticum æstivum*, or spring wheat, is said to be a native of southern Siberia and Sicily, whence its culture has been gradually dispersed through Europe and America. It ripens ordinarily about the same time as winter wheat, when sown very early; but when sown later it is fit to harvest in ten or fifteen days after the former. The following, among other varieties, are described in the books.

1. Having a red spike, or ear and grain.
2. Red spring wheat, with a white ear.
3. A white spike and grain. These three are all beardless varieties, of the same species, are not easily affected by moisture, and give a flour nutritious, but not so white, or in so large proportions, as the winter varieties. These are believed to be the common varieties cultivated among us.
4. *Siberian spring wheat*, probably the variety cultivated in Oneida, and already noticed on the authority of Dr. Goodsell. It is bearded.
5. *The Egyptian*, or *many spiked wheat*. Loudon terms this a variety of winter, whereas with us it is a spring wheat. This is remarkable for its uncommon productiveness. The grains, however, do not yield so large a proportion of flour or meal as other species or varieties, and the flour is said to be scarcely superior to that obtained from the finest barley. It has been introduced in our country to a considerable extent.
6. *Spelt wheat*, noticed under correspondence. Sown in spring.
7. *Italian spring wheat*. This is the variety which was introduced by Mr. Hathaway, of Rome, and which seems to have proved congenial to our soil and climate wherever it has been tried. It is bearded, the product is abundant, and the grain makes excellent flour.

There are besides those we have enumerated, several other varieties of spring wheat, which we do not find described, and with which we are not acquainted, as the Black Sea and Tea Wheat, which are probably mere varieties, which have been modified by climate and culture.

The white, or spring or summer wheats, flourish best on light soils. The ground, however, requires to be well pulverized. A good preparation is a clover ley, ploughed in May, and sown the 15th in this latitude, so as to escape the grain worm. The straw of spring wheat is generally shorter than that of the winter varieties, the berry less plump, the flour less abundant, and darker, but equally nutritious.

The new material for Silk—which has been discovered by a farmer in Oneida, and which was alluded to in a late Cultivator, we are induced to believe, if our information is correct, will prove of great value to the northern section of the state, by enabling the farmers to go extensively and immediately into the silk business. There is no use in dissembling the fact, which the last four years has amply established, that neither the morus multicaulis nor the white mulberry will withstand our northern winters for a series of years, however they may endure a few mild seasons. Nothing certain can be depended upon from them, but an annual growth from the roots, north of the latitude of the valley of the Mohawk. We make this assertion as well from our own observation, as from information, that the winters have proved fatal to thousands which had been planted in Jefferson, Oswego, Onondaga, and other counties. Our experience of the Brussa has not been sufficient to justify a confident opinion as to its hardiness; and the indigenous red, which *is* hardy, attracts but little attention. A good substitute, therefore, is matter of great importance.—The substitute which has been discovered, the name and utility of which will probably be disclosed and verified to the next legislature, is the leaves of a biennial plant, long subjected to garden culture, perfectly hardy, and which can be readily multiplied to any required extent. The importations of foreign silk amounted, last year, to twenty-two millions of dollars.—The substitution of the American for the foreign article, to half, or a quarter, of this amount, would be matter of great importance in a national point of view, and would add materially to the amount of our productive industry.

TO DESTROY THE HESSIAN FLY,

A farmer in Ohio has adopted the following successful expedient:—He sows early in September, and feeds it down in November. The fly is lodged in the lower joints of the grain, and is *bitten off and destroyed* by the cattle or sheep which feed upon it. The wheat becomes well established by being sown early, and shoots so vigorously in spring as to be little if any affected by the fly. An experiment was made in two adjoining fields, sown at the same time: one was *not* fed down, and was nearly destroyed by the Hessian fly; the other *was* fed down, and wholly escaped the insect. We state this on the best authority.

Smut in Grain.—We are surprised to learn that smut is still permitted to adulterate and diminish our grain crops, when it is a fact amply and satisfactorily established, that steeping the seed grain twelve hours in brine, and rolling it in fresh slaked lime, before sowing, will prevent the evil. The *pepper-brand* and *dust-brand*, the two species of smut, are parasitic plants, the minute seeds of which attach to the grain, and are propelled through the sap vessels of the plant, to the germs of the young grain. The salt and lime destroy the vitality of these seeds.

AGRICULTURE IN PENNSYLVANIA.

Pennsylvania was the first to improve upon the early exhausting agricultural practices of the country: she was the first to employ lime in husbandry, the first to introduce the use of gypsum, and the first to establish an agricultural society. The Philadelphia society for promoting agriculture was incorporated in 1785; and it long sustained a high reputation for usefulness, and enriched our country with several volumes of valuable memoirs. The early improvements in her agriculture, were, however, somewhat limited to the sphere of the society's influence, and were but partially perceptible in the remote districts of the state. And her improvements in husbandry very materially intermitted, as the exertions and influence of that society declined, by the death of many of its principal founders and supporters, until New-York, later, but more steady in improvement, and aided and stimulated by the liberal and enlightened policy of governor D. W. Clinton, has outstripped her in the excellence of her farming operations. Though there are many well cultivated districts in Pennsylvania, New-York, as a state, we think, decidedly surpasses her in the general character of her husbandry; and yet New-York has hardly began to develope the immense resources of her soil and her agricultural industry: she is capable, under the improved system of husbandry which has obtained in some of her districts, of trebling the products of her soil, without materially increasing the amount of her labor to obtain it. We do not make this comparison with any invidious view, but to awaken an honorable emulation, between sister states, in improving the condition of agriculture, which constitutes, in both, the foundation of their prosperity and happiness. A competition in this work of usefulness would be equally creditable to the legislatures and citizens of both states, and prove a rich blessing to our common country.

Our attention has been called to this subject by a report made at the close of the late session of the Pennsylvania legislature, by Mr Harper, of the senate. As the Cultivator has a wide circulation in Pennsylvania, we notice this report for the special benefit of our readers in that state, and for the general benefit of the community at large.

"Land," says the report, "is the source of subsistence for all—it is the capital which supports all kinds of business—it is the substratum of credit. The precious metals may be the basis of circulation; but there could be very little active business, without the credit which rests upon land, and its annual productions. The specific value of land, as well as of its produce, mainly depends upon a proper system of agriculture; of course the interests of every man in the community are blended with those of the farmer. The subject, therefore, is of too much importance to be viewed with indifference by a wise legislature, nor will they neglect to

apply all the powers constitutionally vested in them, to advance the prosperity of the most numerous and most valuable class of our citizens.

"It becomes proper, in the first place, to inquire whether, in view of the present state of agriculture, legislative aid is necessary for its further improvement. From our own observation, and information obtained from other sources, we are led to believe, that the condition of agriculture in our state, is not what it ought to be. The object of farming ought to be, to secure the greatest returns for labor and capital invested; not merely the greatest crops for a year or two years, but the largest annual returns, compatible with the increasing value and productiveness of the soil. But is this, in fact, the object with a large portion of our farmers? Does not the contrary appear, manifestly, in many instances? Their sole object appears to be to live with the least possible labor, entirely regardless of the consequences to the land. Their farms are like the garden of the sluggard, overrun with useless and noxious plants; and we may pass them by, as almost beyond the hope of amendment. But, do those who have the true object before them, pursue it in a way likely to attain its accomplishment? Our commonwealth has great capabilties for agriculture; a large amount of fertile soil; a pleasant and healthful climate, and settled with a hardy, industrious, enterprising race of men; yet how few can tell how much can be gathered from a well cultivated acre? How few understand the secret of obtaining from the soil the greatest amount of its annual productions, without the deterioration of its quality? Yet good farming requires that these should never be severed. No man can farm profitably, either to the community or to himself, (supposing him to be the owner of the soil,) who impoverishes his land; and his energies are wasted who improves land, without obtaining profits in return. Doubtless there is a wide difference in the modes of farming, in different parts of the state, some lands being much better tilled than others; still, it is evident that there is still room for great improvement in them all. These improvements are indispensably necessary. The facilities of transportation from the fresh and fertile lands of the west, will soon be so great, that our farmers must find rivals where, heretofore, competition has not been thought of; the difference in carriage will be no protection against their abundance, if a slovenly and unproductive mode of farming shall predominate here. Besides, the strength and wealth of a state consists much in the number and character of its people. Thousands of our best and most intelligent citizens are yearly tempted to go west, who would better stay here under an improved state of agriculture. They take with them the accumulations of former industry and economy, and they bestow their exertions in enhancing the prosperity of another state, detracting so much from our own. Are these evils to be borne forever? or till those states shall be so much ahead of us, that the tide of emigration shall set back on us, as affording the best theatre for industry, ingenuity and enterprise? or until the same system of improvident farming shall have reduced western lands below our own fertility? We cannot believe that our citizens, or legislature, will carry their neglect or supineness to that extent. We believe that our errors will be corrected, and that means exist, and will be applied, to raise our most impoverished fields to more than their pristine fertility."

"But cannot all this be effected without legislative interference? The experience of the world does not give an answer in the affirmative. Although individual enterprise and public spirit may do much in particular districts, GENERAL IMPROVEMENT HAS EVER BEEN THE RESULT OF GOVERNMENTAL PATRONAGE. Individual care and skill have acted as pioneers, by showing what could be done; and government has aided in the dissemination of knowledge, and has encouraged its application to practice. It is unnecessary to give a detailed history of the agricultural colonies of Holland and of the Netherlands; of the boards of agriculture of England and Scotland, and latterly of France, of some parts of Germany, and of some of the states of this Union. Is it not reasonable it should be so? It will be recollected, that farming, as an art, is as much imitative, as any of the mechanic arts, with this difference against it, that in the mechanic arts all the materials are of a known quality; and those which profess to be alike, are really homogenous. The powers of water, in equal quantities and elevations, are equal all the world over; and so in most of the arts;—while the soils of all countries, and of any considerable portions of the same country, are so diverse, that similar applications will produce quite contrary results. So much is this the case, that experiments, from any considerable distance, are deservedly looked upon with distrust. The whole character of a soil may change in a few rods. As an instance it may be mentioned, that our geological survey has ascertained, that the great limestone range of the Cumberland valley, divides the borough of Harrisburgh. It will be necessary to have a series of experiments conducted, on almost every square mile of our territory, before the powers of our soil can be universally and fully developed. Consider these varities of soil, as connected with the changes of atmosphere, and varieties of climate and seasons, in our commonwealth, and the senate will have some uncertain idea of what must be done, before the subject shall be exhausted. Can it be expected that individuals can do all these things, and make known the results, for general benefit? It is worthy of consideration, that the profits of agriculture, though among the most sure, are also among the smallest, which reward the industry of any class of citizens; that a farmer's business is almost always pressing, few items of it admitting of any delay. Think, also, that in very few instances is the farmer protected in the enjoyment of the profits of the inventions, which his skill and talents enable him to make, and that his portion of the public burthens is much greater, in proportion to his income, than that of any other class of our citizens. Think of these things, and then say whether the farmer, laboring under so many disadvantages, can afford to be so much more public spirited than any body else? We think not. For these, and other reasons, let our expectations be what they may, the commonwealth, in fact, will be slow to reap the full benefit of individual exertions. They will be made slowly, and a knowledge of them will be spread slowly—so slowly, that a whole generation shall pass by without being scarcely sensible of a forward movement.

"Will it be said that individuals, by voluntary association and contribution of funds, may remedy this evil? Something may, no doubt, be done; but the evil is too great to be fully mastered in this way. It will require a series of experiments, during a course of years, many of which will fail. A voluntary association may be very useful; but to require them to give their time and attention, and likewise to be at all the expense of spreading information, is asking too much. Many are so unreasonable, as to expect flowers and fruit almost instantaneously after the seed is sown. They become discouraged by a little delay, and retire from the society. This discourages others, till at last, perhaps just at the time when the most brilliant results might be expected, the most persevering and public spirited desist from their labors. The society sinks—the cause sinks—and, in addition to the mortification of disappointed hopes and defeated exertions, they must bear the ridicule and derision with which the ignorant, the prejudiced, and the fault-finding, proclaim their triumph.

"When we consider the importance of the subject, and the uncertainty of these improvements being made, or rather the certainty that they will not be made, by individual or associated exertions alone, we might suppose the argument in favor of legislative action complete. It is well known that mechanics, manufacturers, and those engaged in other branches of industry, beneficial merely to a single district or neighborhood, ask and receive legislative bounty, protection and exclusive privileges. This is an interest affecting the whole state, which, if prosperous, makes all our outlays for internal improvement profitable; which, if not prosperous, must make us all bankrupt. The value of the annual produce of the land in Pennsylvania, amounts, at a low estimate, to forty-five or fifty millions of dollars. Suppose that the utmost that could be done by the exertions of all, should be to add ten per cent to that productiveness, what a difference it would make in the prosperity of our state in a few years. It might make just the difference between prosperity and adversity, for if we could live without the addition, the addition would be clear profit! What a difference between a gain of four or five millions and no gain at all! What an additional impetus it might give to the extent and productiveness of our public works, to have the transportation of this in addition to the present amount! How many valuable citizens would be induced to come here, and be dissuaded from going from us under such a state of things! Does any one doubt, that under a proper system of farming, ten per cent would be added to the present amount of our agricultural productions? How very few plantations are now so perfectly managed, that twenty or twenty-five per cent could not be added? How many might easily be made to yield fifty? And are there not many, very many, whose productions could be doubled? Is not, therefore, the argument in favor of legislative action conclusive? There still remains a most difficult and perplexing part of this subject for consideration. In what manner, and to what extent, shall aid to this great interest be administered? It is evident that means must be used, to have our farming conducted on scientific principles. *It must, in some way,* BE INTERWOVEN WITH OUR SYSTEM OF EDUCATION. Men must learn to judge, from the constituent parts of the soil, and their combinations, what will be the species and qualities of its most profitable productions. An *Agricultural School*, and a *Pattern Farm*, under proper regulations, would imbue the minds of its pupils with valuable principles, and would exemplify and illustrate those principles with a corresponding and successful practice. This would be expensive; but a very small ratio of increase in the annual productions of our farms, would repay it with enormous interest. One successful school of this kind, would, no doubt, be the means of organizing many others; and would, eventually, have a most happy effect on the education and agriculture of the state, and a most beneficial influence on the health and morals of our literary young men. Very signal benefits might be derived to the state from an agricultural survey, soon after the completion of the geological survey now in progress. A report of a skilful practical farmer, after a thorough examination of all the varieties of farming, in use among us, would be a source of much valuable knowledge. Such a report should give minute details; and then would be seen the intimate relation between the minerals, which the earth covers, and the true method of cultivating its surface. Then might a pretty accurate judgment be formed, as to what we might reasonably expect and hope for from our labors."

When we sat down, we intended to give merely a brief abstract of the report; but finding it deeply interesting to every portion of our readers, in

whatever state located, we have copied it almost entire. The only remaining portion is a recommendation to give legislative encouragement to county agricultural societies, by aiding them to offer such premiums as will induce the ingenious and enterprising to devote their labor for the public benefit; and that the subject be commended to the early attention of the next legislature.

The subject matter of the report is of deep interest, not only to the citizens of Pennsylvania, but to the inhabitants of New-York, and of all the states, particularly of those upon the Atlantic border. Our system of agriculture has generally been that of exhaustion, which, if persisted in, will thin our population, diminish the products of the soil, and lessen the inducements to this sort of productive labor, the basis of national prosperity, and the nursery of the virtues and independence which can alone preserve our freedom. Individual and associate efforts have proved inadequate to effect the desired change. It can only be effected here as it has been effected elsewhere,—through the aid and patronage of government; and the mode of doing it is correctly indicated in the report before us:—by the establishment of schools, in which our boys may acquire a knowledge of the science and best modes of practice in agriculture;—and in which they will acquire a relish for its pursuits, and a deep interest in its prosperity—by agricultural surveys, which will bring to the knowledge of all, the best practices and the improvement of all;—and by aid to local societies, to enable them to induce useful emulation in their respective districts. The object to be effected is one of vast national importance. There is no one subject of so deep interest to the country, as the augmentation of our agricultural products. It is not only the farmer who is to be profited,—but the merchant, the manufacturer, the artizan, the laborer, the professional man and capitalist, will all come in for a full share of the benefit. The revenue of our canals, some of which are now sustained at serious annual loss, would be increased, by the increased products of the soil, and the increased wants of the husbandman. The transportation upon our rail-roads and turnpikes would be greatly augmented, and their income correspondingly increased. All would be benefitted, and all should lend an effort to aid in the great work of agricultural improvement.

TIMOTHY SOWN WITH BUCKWHEAT.

On a late visit to Coxsackie, we were shown fields of heavy grass, on the farm of Judge Van Bergen, which were sown severally in 1835, 1836 and 1837, with buckwheat and timothy. The soil is a pretty tenacious clay, which it is often difficult thoroughly to work in spring or autumn; but it may be generally well worked in summer; and when the timothy is sown at this time with buckwheat, it vegetates promptly, and becomes well established before winter. Clover may be added, if necessary, the following spring. The grass was uncommonly heavy; and on the field sown the current year, it was thick and promising.

We had an opportunity, at Coxsackie, of comparing meadows which had been long in grass, with those in which tillage crops had been made to alternate with grass, and of fully satisfying ourselves, had a doubt remained in our mind, of the great utility of the latter practice The recently stocked meadows, although apparently no better in quality of soil, or location, than the others, exhibited a burthen of grass two, three, four, and in some instances, we believe, five times greater than the old meadows.

AGRICULTURAL SURVEYS.

The great improvement which has taken place in British husbandry, in the last half century, has been greatly accelerated by means of the agricultural surveys which, during that time, have been made and published of every county in the kingdom. These surveys are different from geological surveys, although the publications embrace geological maps of all the counties, indicating, by colors, the various soils in each. They are particularly useful to the practical farmer. They detail the various modes of culture, describe and figure the most approved buildings, farming implements and machines, give an account of the main crops cultivated, rotations, domestic animals, &c.; state the product and profits of crops, price of labor, and indeed, embrace all that information which a farmer, desirous of improving his husbandry, by adopting the better practices of others, must be ever desirous to obtain. They in fact concentrate the best farming practices in the kingdom, and then disseminate them for the benefit of all.

We are glad to see Massachusetts, after having completed her geological survey, taking the lead in a work of like usefulness, and hope her example will be, ere long, followed by other states. And we deem her particularly fortunate in the selection of a gentleman, to make her agricultural survey, of high character and qualifications, who combines with science, a good practical knowledge of husbandry. The Rev. HENRY COLMAN is too well known, as an agricultural writer, to need our commendation. He *is* qualified for the task he has undertaken.

Mr. Colman has addressed a circular to farmers in the several towns, soliciting their co-operation in accomplishing the survey; and to give system to his undertaktng, and awaken their inquiry, he has addressed to them queries embracing all the matters which are interesting to good husbandry, with a request, that they will be prepared to give him answers *when he visits them*, which he asks permission to do. Though not exactly located in the Bay State, yet we consider the *hint* as extending to us, as we admire the policy of the government in patronizing agriculture, and have received a circular. and therefore heartily invite our highly esteemed friend to take us in his circuit.

A Commendable Undertaking —A company has been organized in New-York, through the active and praiseworthy exertions of Mr. Minor, of the New-York Farmer, for the manufacture of *Poudrette and Uric*, two articles of concentrated manure, of great power in promoting fertility in the soil, from the contents of the city privies, upon the plan which has long been successfully followed in Paris, and more recently in London and other cities. If we are to judge from its influence in Europe, it will add greatly to the products of the soil about the city, reduce the price of vegetables in the market, and incalculably promote the cleanliness, health and comfort of the citizens. It is estimated that the *vidanges* of that metropolis amount to 250 loads per day. They are completely defecated from odour by chemical process, and may be transported and used with as little offence to the senses as stable dung, or leached ashes. May the undertaking prosper.

OLDEN TIMES—1793.

We continue our notice of the first volume of the old Agricultural Transactions.

DECAY OF APPLE TREES.

William Denning communicates the first notice we find on record of what is now termed the *blight* in the apple, pear and quince. Mr. Denning first observed the disease in his orchard above the Highlands in 1780. "As I observed the young, remote and tender shoots first affected," says Mr. D. "I traced the malady to the spot where the sap ceased to flow, but could discover no external cause. On the second year, I found the boughs wounded deeper, and progressing yearly, the trees continued to sicken, and in six or seven years died." The disease first appeared in the end of June and first of July, when suddenly the leaves withered, turned red and soon fell off; the whole tree appeared sick and the fruit full of spots and unpromising. Mr. Denning ascribed the disease to a borer which entered from the ground into the heart-wood of the tree. The blight of the pear and apple is now ascribed to an insect, or perhaps different insects of the same genus, whose stings are poisonous to the elaborated sap of these trees. The blight has since appeared periodically, at intervals of a few years, and has continued some five or six years at a a time. No preventive is known; though to cut off the diseased branches, into the sound wood, and immediately to burn them, thereby probably destroying the ova of the insect which causes the injury, is believed sensibly to lessen the evil. The *tree* becomes affected by the poisonous elaborated sap which descends from the diseased *branches*.

ADDRESS OF CHANCELLOR (THEN JUDGE) KENT.

This was delivered before the society at the anniversary meeting of 1796. The speaker justly appreciates the importance of agriculture, when he terms it "the absolute means of our subsistence; the source of nutriment to the arts; of freedom, energy, commerce and civilization to mankind, and, in short, as the firmest basis of national prosperity."

He is no less correct in commending, as rich in the blessings of health and contentment, the pursuits of agriculture.

"It is certainly," says he, "a precious advantage attached to agricultural life, that it leads to no intemperate avidity for wealth, and inspires bold and generous sentiments of freedom and independence. Although the remark be perhaps too strong, that cities are the graves of the human species, yet it is obviously true, that the farmer's life, from the use of wholesome air, abundant exercise, moderate pleasures and simple diet, [invaluable blessings, which few justly appreciate,] is by far the most favorable to health, longevity and population."

In describing the condition of Great-Britain, in past times, Chancellor Kent depicted, in no faint colors, some of the evils of our own times.

"*The interests of trade and manufacturers* [and we may now add, of the legal profession,] *gained the ascendancy over the cultivation of the land; the industry of towns was preferred to the industry of the country, and farmers submitted to be governed by* [*lawyers,*] *merchants and manufacturers. and pay a heavy premium for their simplicity and generosity.* The mercantile system, (a system of restraint and monopoly,) arose in full vigor and maturity, and gave a tone to national policy and habits of thinking. It did more; it produced ruinous wars and intolerable exactions, *as if the interests of agriculture was only a secondary matter among the concerns of civil society; as if farmers were fit only to be the slaves of ambition*, and to supply, with scarcely an interval of repose, the prodigality of wars, undertaken to support the balance of trade, and to satisfy the jealousy and avidity of established companies."

As a means of improving our husbandry, the palladium of our freedom, and the source of national wealth, he suggests the importance of an *agricultural* survey of the counties, in the following terms:

"And in respect to the state at large, an accurate account of the quality of the soil and timber, of the effects of the seasons and of the state of improvement, in every county, ought to be collected. Also the man-

ner of cultivation, and the products of each respective soil, the nature and extent of enclosures, the several species of live stock, the various implements of husbandry, the nature and effect of different manures, and of the rotation of crops, and watering of land. When we shall have obtained a very extensive collection of facts, the only sure guides in political and agricultural inquiries, the society will be well qualified to ascertain the existing obstacles to improvement, and the means of removing them, as well as the new improvements that ought to be introduced."

And the duty and disposition of the legislature to aid in the work of improvement, is thus enforced and anticipated.

"To the accomplishment of many of these objects, and particularly the collection and distribution of bo ks [on agriculture,] and a statistical account of our own state, the efforts of the society may be found unequal; and surely for such purposes the benevolent aid of the legislature may be freely asked, and will be cheerfully afforded, since contributing to the enlargement of knowledge, and the perfection of the arts, *is the first duty, and greatest pleasure, of enlightened rulers;* and a work executed on the plan I have submitted, would do honor to the state, and be remembered by posterity, as *an illustrious monument of national patriotism, munificence and taste.*"

WHITE THORN HEDGES.

A paper on the culture of white thorn for hedges, by Jonathan Havens, Esq. details a series of experiments upon this culture.

"The qualities most essentially necessary, says Mr. Havens, "in a tree to make it valuable for a hedge, anpear to be, either that it should be well defended by some kind of thorns, or of a taste disagreeable to cattle — There are besides these, other qualities of nearly equal importance; such as that it should be of a durable nature; of a quick growth; not apt to be infected by insects; easily propagated; not difficult to grow on account of the qualities and strength of the soil; and inclining naturally to grow like a bush, or to grow well after it has been cut off or lopped."

The plants of our country, which combine most extensively these requisites of a hedge plant, are the indigenous thorn, several species, the wild crab, and the honey locust, *(Gleditschia triacanthos)* Of the first, many of the haws are destitute of seed, and it is difficult to make those grow which are fertile. The wild crab is only found in certain districts; yet its seeds may be procured; they germinate freely; and under good management the crab cannot fail to make an excellent fence; and as to the third, the honey locust, the greatest obstacle arises from moles, or ground mice, which frequently bark them in winter. Cattle, however, browse upon all of these plants, so that it is necessary to protect them in early summer, until they have attained the desired size and strength — The prairie west, where they all abound, is the proper place to experiment with these plants.

Mr. Havens' experiments were made upon our indigenous thorn, of which he notices two species, the broad-leaved and narrow-leaved, and upon the English hawthorn. The great difficulty seemed to be to make the seeds grow; and Mr. Havens' experiments were principally directed to this point.

In experiment No. 1, he gathered the seeds of the two American species in April, cracked the haws, and planted the chits in garden mould, mixed with cow-dung. None of these ever came up. Mr. H. inferred, though we think incorrectly, that their vitality had been destroyed by the frosts of winter. It has been found, that the haws of the Washington, or Maryland thorn, are made to grow the first year, by subjecting them alternately to a freezing and thawing temperature.

No. 2. The haws were gathered before frost in autumn, buried in a box, covered with an inch of hen-dung and an inch of mould. About one quarter part came up the second spring following—grew well, and in eighteen months were twelve to eighteen inches high.

No. 3. was an experiment with the haws of the English white thorn. The haws were gathered in the fall, part of them buried in a box below frost, and a part thrown into the hole with the box. Those upon the outside of the box grew generally the second year, and a portion of those in the box, but moisture had evidently been lacking wholly to saturate the latter.— We subjoin our own experience in this matter:—We received a present of a bag of haws of the English thorn, gathered in April, from Alderman Heeny. We mixed them with about double their bulk of soil, laid the mixture in a ridge, and covered with two or three inches of earth. During the summer, the seeds were twice overhauled, remixed and restored to their former position, and covered as at first. Late in autumn, a seed bed was prepared, and the seeds and earth taken up and strewed upon it, and lightly covered with mould. The following spring, the plants came up very thick—were subsequently planted in nursery rows, and at two and three years old were put in hedge. The hedge was nursed six years, when, despairing of success, we dug it all up, and planted in its stead the honey locust. We became satisfied that the English hawthorn is illy adapted to our climate;—that our winters are too cold, and our summers too hot and dry, to cultivate it here with success.

Experiment No 4, was upon the haws of the native broad-leaved thorn. They were buried below frost in autumn, and very few came up the second year.

The fifth experiment was made with the haws of the narrow-leaved American thorn, was managed somewhat like experiment No. 1, and very few of the seeds grew.

Notwithstanding his discouragements, Mr. Havens persisted in the opinion, that our native thorn was a proper material for live fences, and we think he was right, if we can but discover the means of procuring plants. We think we have a good hedge of American thorn, though the plants were collected from the fields and woods, and headed in to six inches when they were planted

Mr. Havens alludes to the former cultivation of the prim for hedges; "but this," he says, "has been long since dead, and there appears no probability that it will ever flourish again." The prediction was not true. We have had it growing in hedge the last four years, unscathed by our severe winters. The prim makes a beautiful ornamental hedge, though it seems doubtful if it will ever make an efficient barrier to cattle. Mr. H. says that hedge plants, and even trees, are much injured in their growth, by permitting a tough green sward to grow around them.— "All kinds of trees will derive nearly as much benefit from being hoed, or having the ground kept loose around them, as Indian corn." This is true, and the hint should not be lost upon the orchardist and the gardener.

AGRICULTURE

SHOULD BE PATRONIZED BY THE GOVERNMENT.

To whatever state, country or age, we direct our attention, we find the condition of agriculture, and the consequent substantial prosperity of the population, in a great measure graduated, by the amount of protection and patronage which is extended to its labors by the government. Where it is nurtured and respected, as it should be, as constituting the source of national wealth and independence—and as the great moral conservator of a community—we find the great body of the people industrious, frugal and prosperous. But where agriculture is degraded as a menial employment, and neglected by the government, we find commerce and manufactures at a corresponding low ebb, and the population ignorant, indolent and vicious.

In Great Britain, agriculture has received the fostering care of the government, in her agricultural surveys, premiums and protecting duties; and she is indebted to this branch of her industry more, probably, than to her commerce or manufactures, singly, for her unprecedented state of prosperity. Every agricultural laborer there, feeds three mouths besides his own—four millions of agriculturists feed a population of sixteen millions. No country has made greater strides in agricultural improvement during the last fifty years, than Scotland, under the stimulating influence of her agricultural society, and the thousands of dollars which she has annually distributed in premiums. Her commerce and manufactures have increased with the products of her soil, as has also the industry, intelligence, probity and comfort of her population.

Contrast with that of Britain, the social and pecuniary condition of Spain, where agriculture has received no encouragement or patronage from the government, and where it consequently receives but little attention from the people. An ignorant, superstitious populace spend their time in indolence and want—the soil, naturally fertile, is neglected, her commerce languishing, her manufactures a mere cypher, and the country torn by civil dissentions, and verging to barrenness and desolation. Such, too, is the condition of a part of once fertile Italy, of a great portion of eastern Europe, of Asia Minor, Syria, Persia, and of the northern portions of Africa, which were once pre-eminent for a numerous population, for wealth and civil refinement. The interests of husbandry have been neglected by the governments—honest industry has come into disrepute, because emulation is not encouraged by the rewards, nor labor protected by the arm of government—the soil is in a measure neglected, and the mass of the people are poor, oppressed and wretched

Were not comparisons invidious, we might illustrate our text by examples nearer home. But we will be content, at present, with holding up good examples, in the hope, that now that the importance of agriculture has been brought home to our *feelings*, by the vast importations of foreign grain, and the embarrassments of the times, the legislatures of the states will be induced, when a sufficient interval of party strife shall permit, to borrow lessons of instruction from states which have acted wisely upon this subject. Commerce and manufactures are fostered and protected by government at an immense cost to the nation, and the fisheries are encouraged by liberal bounties, while agriculture, upon which all must ultimately rely, for sustenance and support, is left to shift for itself. Were this primary branch of labor enlightened and encouraged by the government, as it has been in Great Britain, and is now being in France, Prussia, Msssachusetts, &c. its products would be greatly multiplied, its labors more honored and more followed, and the benign effects of its improvement felt in every department of society.

Great Sale of Durham Cattle.—Matthew Bullock, of Bethlehem, for many years a breeder of improved stock, has advertised to sell at auction, on the 17th October, at his farm, eight and a half miles from Albany, fifty-one head of Durham cattle, embracing 31 cows, 11 heifers, 8 calves and 1 bull.

MILLET.

A correspondent in Monroe county inquires of us relative to the culture, product and use of millet, as a field crop.

Since our wheat crop is likely to be seriously diminished by the grain-worm, and the Indian corn crop is almost annually curtailed by autumnal frosts, the culture of millet may become a matter of interest; for although it is not adapted to household use, or but partially, the seed affords a good substitute for coarse grain to pigs and poultry, and its straw yields a tolerable fodder for farm stock.

Culture.—This plant will grow upon any soil of tolerable richness, though it does best on a loam. The ground should be prepared as for ordinary crops. The seed may be sown broad-cast, and covered with the harrow. If sown early, the crop may be gathered in August, though if sown any time before the 25th June, it will come to maturity. If seed is the object, four quarts of seed to the acre will be enough; but if intended principally for cattle feed, the quantity of seed may be increased to eight quarts. It grows to the height of from two to six feet, according to the quality of the soil. Birds are fond of the seed, and devour it as soon as it begins to ripen. The crop should be therefore cut before the whole has matured, and while the straw is green. It may be cut with a sickle, scythe or cradle, and should be housed as soon as it is sufficiently dry.

Product.—The product will be according to the soil, and will vary from ten to thirty bushels of seed, and from one to three tons of forage, on the acre. It sometimes produces more than a thousand fold returns.

Use.—We have found it an excellent substitute for corn, in fattening hogs, either ground or boiled; and its early maturity renders it particularly useful for this purpose. It is an excellent food for poultry; and if ground would probably be useful for neat cattle and horses. The straw is eaten freely by cattle, and both the seed and straw abound in nutritious matter.

Millet is extensively cultivated in Germany and the south of Europe, where it is sometimes used for puddings, &c. but from our little experience, we cannot recommend it for household use. Birds, we believe, are the only enemies which the crop has to encounter.

MISCELLANEOUS NOTICES.

STEEPING SEED CORN.

We have the opinion of Lysander Chapin, of Chicopee, Mass. founded on his experience, that steeping seed corn is prejudicial, his steeped seed not having come up so well nor so quick, as the seed which was not steeped. This is the third communication we have received of like import. Were we disposed to canvass this question, we might probably cite three thousand cases in opposition to such a conclusion, but it would be wasting time. Let us reason the matter. All seeds must be saturated with moisture before they can germinate or grow; and the sooner they become saturated, other things being alike, the sooner they will germinate and grow. Onion seed, thrown into scalding water, will sprout in a few hours, though its vitality is thereby destroyed. Corn immersed in warm water, probably begins to germinate in twelve hours, though if planted dry, it may not become saturated, and begin to germinate in less than three to six days, according to temperature and the supply of moisture. These facts being granted, and we believe they cannot be controverted, it follows that steeping facilitates the germination. To account for a contrary result, in the practice of our correspondents, we must suppose one of three things, viz: 1. The absence of heat in the soil, to carry on the germinating process, already commenced in the steep; 2. The abstraction of the moisture from the steeped seed by dry earth, with which it may be covered, and which, on the supposition that the radicle has started in the steep, will destroy the vitality of the seed; or 3. That the steep must have destroyed the germinating property of the seed. If steeped corn is covered with *moist* earth, and the hill pressed upon by the planter's foot, to prevent evaporation, we see no reason, according to our philosophy, and we have met with none in our practice, why it should not grow as well, and as quick, as seed that is not steeped.

SMUT IN BARLEY.

O. B. Ashmun, of Champlain, complains that his barley crop is greatly injured by smut, and asks if there is any way of preventing a recurrence of the evil. We have no doubt but the smut of wheat and barley are identical, and that in both the seeds of the parasite may be destroyed, and the crop preserved from smut, by steeping the seed grain in pickle, and rolling it in lime, before it is put in the ground. Smut is of two kinds, provincially termed in Britain, the pepper brand and the dust-brand—the first appearing as the head is bursting the sheath, and the other in the fully developed head. The seeds are so minute as to be absorbed, it is believed, by the germinating seed grain, and propelled by the circulating sap into the young germens. The salt and lime, when applied to the seed grain, destroys their germinating principle.

THE BARBARY BUSH.

S. S. Breese, of Sconondoah, informs us, that he has a field of wheat very badly blasted, so much so as to render the crop of little value; and that the blast has been ascribed to barbary bushes which are cultivated by Yankee emigrants, in his neighborhood; and that, in consequence of its pernicious influence upon the wheat crop, the culture of this bush is proscribed in Connecticut and in Spain. He asks our opinion of the truth of these matters The prevalent opinion among the farmers of Britain, and on the continent, is, that the barbary bush is highly injurious to the wheat growing in its vicinity. "The effect of this shrub," says Willich, "upon wheat lands, is truly singular, and though well-known to botanists, is not familiar to every farmer. When growing in the hedge, or near corn [wheat] fields, it changes the ears to a dark brown color, and prevents them from filling; nay, its influence in this respect has often extended across a field to the distance of three or four hundred yards, [in the direction of the prevailing winds.] It should be carefully eradicated from lands, therefore, appropriated to tillage"

Truth requires us to add, that the above opinions are controverted by some of the most learned naturalists of the day. Sir Joseph Banks went deeply into the investigation of this subject, and spoke in doubt on the deleterious influence of the barbary bush upon wheat. All seem to agree that the rust fungus, or blight, is a parasitic plant, the seeds of which float in the atmosphere, attach themselves to grain, and there germinate and grow, to the prejudice of the crop. "They germinate and push their minute roots, no doubt, (though these have not been traced,) into the cellular texture, beyond the bark, where they draw their nourishment by intercepting the sap that was intended by nature for the nutriment of the grain. The grain, of course, becomes shrivelled as the fungi are more or less numerous on the plant; and as the kernel only is abstracted from the grain, while the corticle part remains undiminished, the proportion of flour to bran in blighted corn is always reduced in the same degree as the corn is made light Some corn of last year's crop, will not yield a stone of flour from a sack of wheat."—*On blight in corn*. The question at issue seems to be, whether the parasitic fungus that is observed upon the barbary bush, is identical with that which injures the wheat?—for there seems to be no doubt that the seeds are so minute as to be wafted upon the wind. Naturalists say no—practical men say yes. We will not pretend to decide.

CLOVER AFTER CLOVER.

David Miller, of Brownville, Pa. asks us, if clover will grow with wheat, which has been sown the preceding fall upon a clover ley? It certainly will, and this mode of alternating clover and wheat is extensively practised in West N. York, though we think the practice a bad one, tending to exhaust too much the specific food of both crops. It has been found in the great clover county of Norfolk, England, that this grass fails when returned too often to a field; that it will not bear repeating, in many instances, in every four years course of crops; and that it is necessary to substitute other grasses for clover in every other course.

GRAFTING ON WILD STOCKS.

William Hecox, of Florida, Mich. says the thorn, wild plum, wild cherry and crab apple, abound in his neighborhood; and he inquires,

1. Can the cultivated kinds of these fruits be grafted on the wild stocks of the same? *Ans*.—Yes.

2. Can grafts be safely cut in winter. *Ans*.—Grafts may be cut any time after the fall of the leaf in autumn, and before the buds swell in spring—and may be kept in good condition, by placing the buts in moist earth in the cellar, or in a potato. And

3. Will grafts produce fruit sooner if taken from bearing, than if taken from young trees. *Ans*.—Yes.

The pear is not thrifty, and is generally short lived, when put upon the thorn. The practice is only warranted by necessity.

We would advise Mr. Hecox, and all other frontier settlers, who wish to raise fruit, and who does not? to procure seeds of the cultivated kinds, sow them in nursery, and bud or graft them with choice kinds; a tree or two of the desired kinds will cost but a trifle. One tree of good fruit is worth half a dozen trees of bad fruit. The peach may be budded the year the seed is planted, and the apple, pear and cherry the second year after planting the seed. This is the mode we adopted sixteen years ago; and our trees have been in bearing many years. If wild stocks are used, young thrifty plants should be selected, and planted in the garden, and the graft inserted low, or in the collar or root, as the cultivated kinds are apt to overgrow the wildings.

A WOOL DEPOT,

For the reception and sale of wool, has been established, by John A. Parker, corner of Wall and South-streets, New-York. For particulars wool growers may address Mr. Parker, it not being consistent to publish advertisements except with our February number.

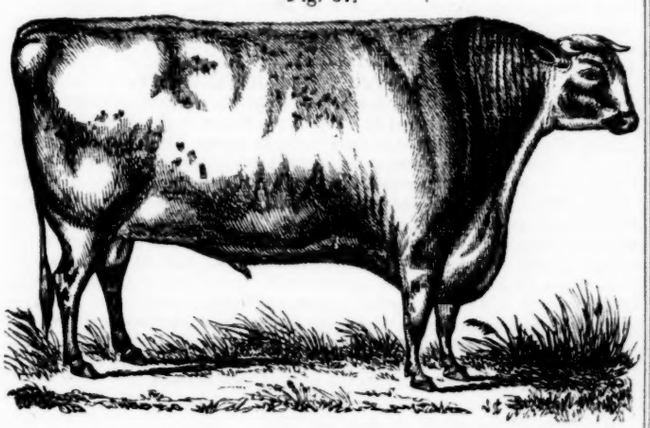
STUMP EXTRACTOR.

We have a communication of E. Cornell, of Ithaca, confirming the statement of Judge Drake, of the utility of Pratt's Stump Extractor. Col. Cobb, of Dryden, has had one long in operation—has 500 rods of stump fence, substantial and permanent, and takes out from 40 to 120 stumps in a day, according to size, with two ox power, and five men.

CATTLE—IMPROVED SHORT-HORNS.

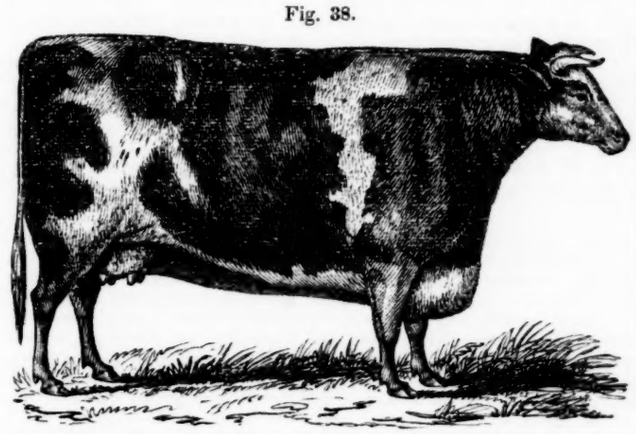
We give below, a likeness, very correctly copied from the herd-book, by our excellent artist, Mr. Hall, of the celebrated improved short-horn bull COMET, (fig. 37,) (bred by Mr. C. Colling,) and sold by him for 1,000

Fig. 37.



guineas; and also of VIOLA, (fig. 38,) a beautiful milch cow, of the same family, (bred by J. Whitaker.) The properties and fine points of this breed of cattle, will be found described in our first volume.

Fig. 38.



The following extract relative to this breed of Cattle is taken from the "Complete Grazier:"

The Short-Horned Cattle, under which denomination are indiscriminately included the *Dutch*, *Holderness* and *Teeswater breeds*, are supposed to have acquired the appellation of Dutch, from a cross with some large bulls that were imported near a century ago, from Holland into Yorkshire, in the east and north ridings of which county, the two latter had been long established. It has, however, been doubted whether any advantage was derived from this intermixture; for the increase thus obtained in size was thought to have been counterbalanced by a more than proportionate increase of offal. But, fortunately, the error was not universal; for some intelligent breeders, aware, even at that day, of the superiority of symmetry to bulk, preserved the breed of which they were already in possession, in its native purity; and it is from some of that stock so maintained, or, at least, from a cross between that stock and some of the progeny of the Dutch and Teeswater cross, that the present improved short-horned cattle, now generally distinguished as the *Durham*, or *Yorkshire breed*, are descended.

This breed was introduced about forty years ago, by the Messrs. Collings, of Darlington, and has rapidly risen in the public estimation. The cattle are very large, and are beautifully mottled, with red or black upon a white ground; their backs level; throat clean; neck fine; carcass full and round; quarters long; hips and rumps even and wide: they stand rather high on their legs; handle very kindly; are light in their bone, in proportion to their size; and have a very fine coat and thin hide. They differ from the other breeds, not only in the shortness of their horns, but as being wider and thicker in their form, and consequently feeding to greater weight; in affording the greatest quantity of tallow when fatted; and in having very thin hides, with much less hair upon them than any other kind except the Alderneys. They also possess the valuable properties of fattening kindly at an early age, and of yielding large quantities of milk; but the quality of the latter is not so rich as that of some other species; they are, besides, rather tender constitutioned, and, consequently difficult and expensive to winter.

Of this breed, Mr. Charles Colling, of Ketton, sold a bull—*Comet*—by public auction, in the year 1810, for the extraordinary sum of *one thousand guineas;* and the history of the celebrated *Durham ox*, the property of the same gentleman, is too remarkable not to merit attention.

He was bred in the year 1796, and at five years old was not only covered thick with fat upon all the principal points, but his whole carcass appeared loaded with it, and he was then thought so wonderful an animal that he was purchased in Februaay, 1801, for £140, to be exhibited as a show; his live weight being then 226 stone, of 14 pounds. In the following May he was again sold for £250, to Mr. John Day, who, two months afterwards, refused for him two thousand guineas! He was exhibited in the principal parts of the kingdom until April, 1807, when he was killed, in consequence of having accidentally dislocated his hip in the previous February, and although he must have lost considerably in weight during his illness, besides the disadvantage of six years' travelling in a caravan, yet his carcass weighed 187 stone 12 pounds; and Mr. Day stated his live weight at ten years old, to have been 270 stone.

Uncommon as this animal then was, he has, however, been since exceeded in size by a Yorkshire ox, bred by Mr. Dunhill, of Newton, near Doncaster, the carcass of which weighed, when killed, 264 stone 12 pounds; and he was supposed to have lost near forty stone while being exhibited in London.

Still more recently, another beast of uncommon size, fed by Lord Yarborough, has been exhibited under the title of the "*Lincolnshire Ox;*" but, though bred in that county, from a favourite cow belonging to Mr. Goulton, he was got by a descendant of Comet, out of Countess, also of the Durham breed. This extraordinary animal measured five feet six inches in height at the shoulders, eleven feet ten inches from the nose to the setting of the tail, eleven feet one inch in girth, and three feet three inches across the hips, shoulders and middle of the back; the lowest point of his breast was only fourteen inches from the ground, and he stood one foot ten inches between the fore legs; the girth of the fore leg was nine inches.—*Complete Grazier.*

Mile —The following exhibit of the number of yards contained in a mile in different countries, will often prove a matter of useful reference to the readers of the Cultivator.

Mile in England or America,	1,760	yards.
—— Russia,	1,100	——
—— Italy,	1,467	——
—— Scotland and Ireland,	2,200	——
—— Poland,	4,400	——
—— Spain,	5,028	——
—— Germany,	5,866	——
—— Sweden and Denmark,	7,233	——
—— Hungary,	8,800	——
League, in England or America,	5,280	——

☞ Mr. Bushnell, who exhibited an approved drill-barrow to the agricultural examining committee, as mentioned in our last, is a resident of Sheffield, and *not* of Lee, Mass.

WILSON'S MOWING MACHINE.

The subscribers, having witnessed, on the 11th August, on the farm of Mr. Teller, of Greenbush, the operation of Wilson's Mowing Machine, certify to the following facts:

The machine was propelled by one horse, upon a brisk walk, through a meadow of thick timothy and redtop, somewhat lodged or tangled. It cut a swath from two and a half to three feet broad, in handsome style. We are of opinion, that with a double team, or two stout horses to relieve each other at intervals, the machine will operate well on smooth bottoms, free from stones, and effect a great saving of manual labor. The knives are sharpened by their revolving motion.

We think Mr. Wilson entitled to great credit for his skill and perseverance, and hope he may be amply remunerated for both.

WILLIAM AKIN,	WILLIAM TELLER,
JOHN TOWNSEND,	ISAAC AKIN,
J. BUEL,	AARON B. AKIN,
BENJ. AKIN,	THOMAS DUNN.

August 12, 1837.

A real friend will show us our faults.—We often commend our friends, from courtesy, or in the hope of having our flattery reciprocated, for conduct which is really reprehensible. Friendship should deal only in truth, which, though it cause temporary pain, generally eventuates in good.

CORRESPONDENCE.

STEAMING APPARATUS.

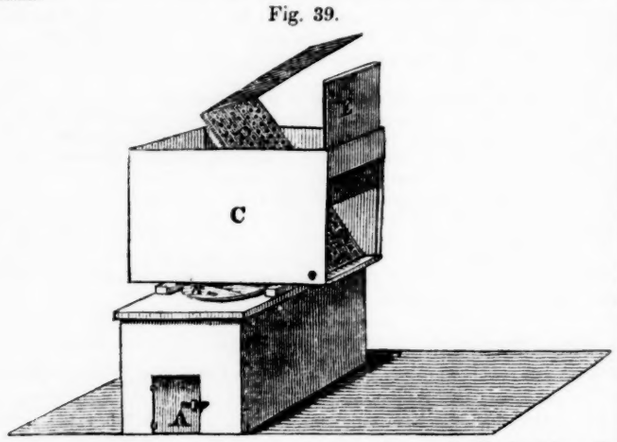
We think so well of the apparatus described below, that we intend to have one in operation as soon as our potato crop is gathered.

STEAMING VEGETABLES.

J. BUEL—DEAR SIR—The method of cooking potatoes, turnips, &c. by means of steam, for feeding hogs, I believe would be universally preferred and adopted, were it not supposed that the steaming apparatus would be too expensive for farmers generally to provide. The operation of steaming potatoes can be performed with less trouble than that of boiling. In Vol. II. No. 7, of the Cultivator, is a cut and description of what you consider to be a very good apparatus; the expense of which is estimated at about fifty dollars. And you very justly conclude that farmers cannot afford so great an outlay for this purpose, who have less than fifteen or twenty hogs to feed.

But, sir, the object may be attained in a much less expensive way.—Any farmer who begins work in the morning, who can borrow an auger and use it, may provide himself a good steaming apparatus in one day.—We have had one in use two or three years, such as I shall attempt to describe.

Fig. 39.



A. Furnace door. B. Boiler. C. Steam-box. E. End slide. D. False bottom, with holes in.

Every farmer has an iron kettle, commonly called *the great kettle*, which will answer very well for a boiler. Let such an one be properly set in an arch; fit a cover of inch boards within the rim, and lute it with clay to make it tight. A piece six or eight inches wide should be nailed across the cover to keep it from being warped. Make a hole in the centre of the cover large enough to receive a tube of two inches calibre, to convey the steam. Another hole two inches in diameter is to be made near one side of the cover, through which the boiler is supplied with water, and is stopped with a plug. Make a box for potatoes, &c. three feet long, sixteen inches wide, and two feet high. This is set over the boiler, resting upon the arch; the bottom of which should not be more than four or five inches above the cover of the boiler. The hole in the bottom of the box to receive the tube from the boiler, is made near to one side of it; the box covering but little more than half the boiler, leaving a convenient space to fill it through the plug-hole. The tube should project half an inch through the bottom, to prevent the drippings from the potatoes running into the boiler. The position of the box should be a little inclined; the lower end projecting beyond the arch for the convenience of taking out the potatoes when cooked. This end of the box is made with a slide to draw upwards, when the cover is taken off. There is also a closely perforated bottom within the box, placed an inch and a half above the first, that the steam may be equally diffused throughout the mass. The end of the perforated bottom next to the open end of the box, is fastened to a round stick passing through the box from side to side and serves as a hinge to this bottom. On the other end of the perforated bottom, let a board of the same width be fixed that shall rise near to the top of the box, having a hole in it to insert a hook for the convenience of raising it when it is to be emptied; if it be required to do so while the potatoes are steaming hot. Thus the box may be readily emptied of its contents without stopping up the holes in the bottom, as would be unavoidably done with a hoe or shovel. The cover of the box should be secured from being warped.

Should it be required to steam on a larger scale than this, two such kettles may be used in an arch, and the steam from both conveyed into a box of greater dimension.

The method of placing the potatoes or other food to be cooked, above, and very near to the boiler, is manifestly more economical than that by which the steam is conveyed the distance of several feet in a metallic pipe; as in the latter case a considerable portion of heat is evidently lost before it reaches its destination.

I send herewith a drawing of this simple contrivance, to enable you more fully to understand its construction; and if you think proper, you can describe it so that others may understand it also. Yours, &c.

NATHAN LOOMIS.

Butternuts, Otsego county, July, 1837.

GRASSES FOR THE SOUTH-WEST.

J. BUEL, ESQ.—DEAR SIR—I saw by the August number of the Cultivator, that Mr Edward H. Bryan, of Vicksburgh, Mississippi, inquires, through the columns of your valuable paper, what grasses will endure the climate of that state, and furnish a winter supply for stock.—From my knowledge of that part of Mississippi, in the vicinity of Vicksburgh, Grand Gulf, Port-Gibson and Natches, I would recommend the white clover and gama grass. They both thrive admirably well in the southern part of the state of Louisiana. The white clover grows much better in the vicinity of Franklin, New-Iberia, and St. Martinsville, (which places are in the same latitude of New-Orleans, but in a due west course about 120 miles distant,) than in New-Jersey. And the gama grass is to be found natural, where the land is kept enclosed, and the cattle kept from eating it, but on the prairies they pick it out so close, that it would not be observed unless a person was looking very close for it, but the red clover will not stand the heat of that climate.

Yours sincerely, WILLIAM A. STONE.

Rahway, Essex co N. J. Aug 13, 1837.

P. S I have planted a patch of the Buel or Dutton corn, but it does not meet my expectations, on account of its bearing but one ear on a stalk. I do not think that I have five stalks in the whole patch with two good ears on them; it is the earliest corn I ever saw. I discovered the tassel on it in two months from the day it was planted. I have it planted 3½ by 2 feet, on my best land.

I wish you would inform me through the Cultivator, if it generally produces more than one good ear on a stalk. W. A. STONE.

Planted close, the product is generally but one ear to the stalk—planted wider, it is commonly more. At four feet apart, we believe the Jersey distance of planting, there would be but 2,722 hills on the acre. If planted 3½ by 2, there would be 6,222 hills—or more than double. It is by multiplying the hills that the great product is obtained.—[*Conductor*.

SPELT WHEAT.

J. BUEL—DEAR SIR—Having read, in your valuable paper, and other publications, of so many failures of wheat crops in your part of the country, I consider it my duty, to call the attention of your farmers to an excellent substitute for this (in some places so precarious) bread stuff, by stating the following facts:—In the country where I came from, (the fertile plains between Heidelberg and Manheim, and the rivers Neckar and Rhine, in Germany,*) wheat was universally raised in former times, but as the crops failed frequently, the farmers turned their attention to spelt, and succeeded so well in raising this valuable grain, that you cannot see there, now, one acre of wheat among hundreds of spelt. Spelt makes superior flour, and of course, better bread; is not so difficult in raising, nor so much subject to losses by cutting over-ripe, and easier threshed clean in damp weather. I am in the habit of raising a few acres every year, but can only use it as a good horse-feed, for want of a spelt-mill. Such an apparatus could easily be added to every mill in a neighborhood where the raising of spelt would prevail. If you think this well meant hint worth publication, you may, if you please, dress it in better English than I am capable of doing. Your humble servant,

F. C. SPEYERER.

Butler county, Pa 26th July, 1837.

The Spelta, Spelt or German Wheat, spoken of above, is extensively raised in Germany, in France, and on the Rhine; its culture has been recommended in the north of England, and has been introduced in Pennsylvania, by German emigrants. It nearly resembles barley, though its stalks are shorter. Its straw is stout and almost solid. From it is manufactured the incomparable Nuremburgh and Frankfort starch. It grows well on mountainous lands and poor soils, though like every other crop, it thrives best on lands that are fertile. This grain cannot be divested of its husks by threshing, but requires the operation of a mill for the purpose. Willich calls it an excellent grain.—*Conductor*.

THE ARMY WORM.

Vermillion, Ia June 27, 1837.

DEAR SIR—Have you any knowledge of what we call the "Army Worm?" I have never heard of their ravages in your section, and so I ask the question. They sweep through our meadows, timothy principally, wheat fields and corn, and generally leave the stalk naked of blades. I had about 60 acres of timothy destroyed this year by them. When they commenced, the head was just appearing, and in about ten days there was

* Under the 50th degree of northern latitude.

nothing but the bare stalks to be seen. The meadow was stocked down a year ago, last August or September, and a part of it with wheat, which was of very rank growth, and much stubble was left on the ground, and they seemed principally to have their origin in the stubble; and I noticed them in my old meadow, wherever mown. I was afraid they were much more numerous. I should have burned off the ground, but our spring was very dry, and winds high. This I have no doubt would have destroyed the egg. When I first discovered them, it was after a warm rain and a cloudy morning—then the grass was black with them. I was careless in not preserving some to mark their change, but a small proportion of them are transformed into millers, for I found many dead on the ground. They have done very little injury in the neighborhood. I intend sowing 100 acres timothy and wheat this summer, and shall take the precaution to burn them over next spring at the risk of my farm.

Do you know any preventive or means of destroying them?

In haste, yours with respect,

JOHN R. PORTER.

My winter and spring wheat looks fine, though late. The Italian was sowed first May, but our frequent showers are bringing out the heads finely.

Dear Sir—Permit me to ask your Dutchess county correspondent to review his article in the June number of the Cultivator, upon the subject —"More profitable to feed hay than to sell it." There is something in his statement which, to me, appears quite inexplicable. If we substitute *loads* for tons, bushels, and dollars worth of straw, it will be very nearly as follows:—

15 tons of hay make as many loads—but say.....	20 loads.
325 bushels mangold wurtzel and ruta baga, allowing 25 bushels to the load,.....	13 loads.
1½ tons cotton seed oil cake, ...	2 loads.
30 dollars worth of oat straw, when hay sells at $20 a ton, cannot be more than.....	30 loads.
Amounting in all to.....	65 loads.

Now if your correspondent made, from this amount of food, "260 ox-cart loads of stable dung, well heaped," it is the greatest augmentation of matter, I have heard of since the time of miracles; when "twelve baskets full of fragments were taken up," after a few loaves and fishes had filled a great multitude.

It is presumed the writer of the article in question will not pretend that the transmutation of food into dung, by animal functions, will either add to its weight, or increase it in volume. The query is, by what mighty magic did Mr. J. effect this wonderful increase? I ask for information.

Otsego county, July, 1837. NATHAN.

DUTTON CORN, &c.

Selin's Grove, Aug. 15, 1837.

J. Buel, Esq.—I am much pleased with the appearance of the Dutton corn. I have it planted on four farms, along with other corn. It is now in full ear, whilst that which is planted along side is not by two or three weeks so far advanced. On the farms its growth is quite dwarfish, compared with our other corn; but I have a lot of about one and a half acres, near my house, planted with Dutton, which stands full seven feet, if not more, full of fine ears, a majority of which have not 12, but from 14 to 16 rows of grain. Much of it is now too hard to boil.

The small sample of oats [Barley oats,] you had the goodness to send me, I drilled in my garden, and have cut it. I like it very much, and think it will be a great acquisition.

My spring wheat [Italian] did much better than I had reason to expect. I did not get it in time to sow before the 1st May. It was much injured by mildew. We cut it on the 14th inst. and we have estimated the yield at 20 bushels. This from one bushel of seed.

Very respectfully yours, H. W. SNYDER.

CORN BREAD—HOMMINY, &c.

Lake County, Ia. 2d August, 1837.

Judge Buel,—Dear Sir:—Permit an experienced Hoosier to add to your "Corn Bread" receipt. There are two reasons why southern or western corn bread is so "grateful to the taste." Let eastern lovers of corn bread adopt these two maxims:

1st. Never grind the corn *fine*, or sift it through a fine seive—no matter how coarse the meal, if the hull is removed.

2d. The *hotter* the spider or bake oven, so that it will not burn the dough immediately, the softer and sweeter will be the bread. The lid may be put on red hot, and when it begins to scorch, remove it a minute or two. The great secret being to form a slight crust all over the cake instantly.

The *rolls* described by your Tennessee correspondent, are called all over the west "*dodgers;*" the raised loaves "*pones.*"

The word "homminy," I think, is but little known at the east. It is a western word, and a western dish. The receipt does not convey a sufficient knowledge to the uninitiated. It is simply "hulled corn," of which you used to be so fond, when a boy, "I guess." The Yankee mode is hulling by lye, and then boiling and eating directly, or at any rate before it sours. The western mode is hulling by pounding, as described, in a "homminy mortar," the music of forty of which I have heard from as many negro kitchens at one time, of a still evening, on the banks of the Ohio river. The process is tedious, but produces an excellent article of food; a good substitute for rice. Sound white corn should be selected. The pounding breaks the kernel somewhat, and dries it. It is then put away in a bag or barrel, and will keep as long as rice. It is not so useful, however, among the universal potato eating nation as it is at the south, where it often happens that families do not raise ten bushels of potatoes in ten years. "Hog and homminy," "corn bread and common doings," constitute their living, except an occasional meal of unraised hot "wheat cakes and chicken fixings."

Homminy is a very pleasant, light food, which, though quite nourishing may be eaten by the dispeptic with impunity. Your receipt for the cooking is perfect.

I do not write for the sake of having it published, you will use it as you think proper, without giving any offence to, A FRIEND.

EXTRACTS.

ADDRESS OF JAMES McNAUGHTON, M. D.

Delivered before the N. Y. State Agricultural Society, Feb. 10, 1837.

Gentlemen:—I regret that some person more competent than myself could not be prevailed upon to address you on the present occasion. I must crave your indulgence in advance, for any imperfections you may observe in the matter or manner of my discourse, as the call upon me to address you has been unexpected, and I have had but a short time for preparation, amidst the numerous interruptions incident to my profession. It might be supposed that a farmer would be the most suitable person to address a society instituted for the purpose of promoting agriculture, and other branches of rural economy. There cannot be a doubt that the remarks of a practical farmer would have more weight and authority, than those of a person who merely professes a love of rural occupations, and has paid attention to them, rather as matters of relaxation and amusement, than as the serious business of life.

Those most conversant with the history of agriculture, will, however, recollect, that many of the greatest improvements made within the last half century in that department of human industry, have emanated from professional men, and from gentlemen who never held a plough, or labored in the field.

Although myself very little of a practical farmer, yet I have had opportunities of witnessing a good deal of farming operations, as carried on in this country, and in some of the most improved countries of Europe; I therefore hope that some of my remarks may be deemed worthy of the notice of the society. This society was instituted for the purpose of carrying into more general practice such improvements relating to rural affairs as are calculated to elevate the character of the farmer, to render the noble business of cultivating the soil more profitable, and to promote the general prosperity of the state. The field of our exertions is not limited to mere agriculture, or the cultivation of the soil, but embraces likewise every thing relating to rural economy.

In the remarks which follow, I shall avail myself of this latitude, and trust the society will pardon me if I appear to digress too much from what may be considered the special object of our association.

Agriculture may be regarded as the parent of arts, commerce and manufactures, and the great source of the prosperity of nations. Its history dates almost from the creation of man. In the state of innocence, in the garden of Eden, it is probable that the earth spontaneously yielded all that was necessary for its inhabitants. But immediately after the fall of our first parents, Holy Writ informs us, that Adam was expelled from the garden, "to till the ground from whence he was taken." Consequently, agriculture ranks first among the arts, not only in importance, but in seniority. Of the immediate descendants of Adam, the first born was a "tiller of the ground," and his brother Abel "a keeper of sheep." Here, then, we have, at the very origin of our race, the agricultural and pastoral life commencing simultaneously, although it has been a favorite speculation with philosophers, to designate three progressive stages of society. The first, that in which man is supported by the spontaneous productions of the soil, by hunting and by fishing—the second, the pastoral—and the last, the agricultural stage. Such does not seem to have been the progress of society before the flood, whatever may have been the case since that period. No distinct mention is made of hunting before the time of Nimrod, who is described as "a mighty hunter."

Immediately after the flood, it is probable that the human family had recourse to agriculture and fishing for their support; for it is fair to presume that the beasts of the field, fit for the food of man, were as yet too few to be used for that purpose;—and that therefore they were allowed to multiply for some time without molestation. Warrant was granted to Noah to eat every moving thing that had life—"Every moving thing that liveth

shall be meat for you; even as the green herb have I given you all things."

It is not improbable that mankind, for several ages after the flood, remained united, and that agriculture and the arts had made considerable progress among them. The fact of their being together in such numbers as to commence the building of a city—to make brick, and to use slime or pitch for mortar—and to attempt to build a tower whose top should reach "unto the heaven"—shows that the necessaries of life must have been raised in abundance around them, and that many were enabled to withdraw from the cultivation of the soil, to the arts necessary for the artificial society of a city. But upon the dispersion of mankind, by the miraculous confusion of tongues, whether we interpret the language literally or figuratively, much of the knowledge existing in a dense population must have been lost, as mankind became scattered and ceased to communicate with each other. As few, in all probability, were capable of remaining together, on account of the scantiness of the means of support, a relapse into barbarism was scarcely avoidable. Many, of a roving disposition, would support themselves by hunting, while the more prudent would trust to the rearing of flocks, and a more or less careful cultivation of the soil.

But as they had the whole world before them, it is not probable that there was much industry, or much attention to the arts, for a long period. The pastoral life being the easiest, and less precarious than that of the mere hunter, we find that it was followed by the patriarchs; and recent travellers assure us, that the customs of the nomadic tribes of Asia are not essentially different, at this day, from what they were in the days of Abraham.

In process of time, however, mankind had become so numerous that more attention to the cultivation of the soil became necessary for their support. They began to acquire fixed residences, and to accumulate individual property. Arts and civilization necessarily sprung up among them; and in proportion as agriculture made progress, nations became civilized, prosperous and powerful. It has always been so, and there is reason to believe it will continue so as long as the world lasts. Sully expressed his conviction of this truth, by saying, that agriculture might be regarded as the breasts from which the state derived its nourishment and support.

The Jews were an agricultural and pastoral nation, having few manufactures, and but a very limited commerce. Egypt seems to have been the granary of the world during the most flourishing periods of the Jewish monarchy. The natural fertility of the soil of Lower Egypt, caused by the periodical overflowings of the Nile, was probably the cause of this, rather than the skill or industry of her agricultural population. The Greeks are supposed to have derived their knowledge of agriculture, as well as of other arts, from the Egyptians; but they do not seem to have excelled in the cultivation of the soil. Their country was in many respects unfavorable, being more remarkable for picturesque scenery and natural beauty, than fertility. To render the soil fertile and productive, required more labor than the Greeks felt disposed to bestow upon it. Most of the field labor was performed by slaves; and I believe there never has been a country highly improved by such labor.

The Romans, as they were in all respects a more industrious, a more honest, a more respectable people than the fickle Greeks, carried the arts of husbandry to a higher degree of perfection. From the Georgics of Virgil, and more particularly from the writings of Columella, we gather, that during the Augustan and subsequent ages, agriculture was practised on correct and regular principles. Columella has left us twelve books on agriculture and gardening. The style is elegant, and the work is said to display the genius of a naturalist, and to evince an observing mind. Unlike most conquering nations, particularly those of antiquity, the Romans carried with their arms civilization and arts. They did not, in general, burn the towns and lay waste the countries they subdued. Whenever they formed a permanent conquest, they opened roads, built bridges and aqueducts, and promoted agriculture. All this they might have done, less for the good of the subdued, than for their own security and advantage. But still, if we deny them credit for motive, we cannot in justice refuse to concede to them the merit of having diffused improvement and civilization over extensive regions of the earth, which had hitherto remained in a state of barbarism, and which, but for them, might have remained so until this day. Our ancestors were found by them little better than the savages that roam through our own forests. They went to war, naked and painted, like the Indians of modern days, and do not appear to have made much, if any, greater progress in the scale of society. The people of the northern parts of the continent of Europe were very much in the same condition. But the parts that submitted to the Roman sway, felt the influence of the energetic government of that remarkable people. Towns and cities sprung up in great numbers—the soil became better cultivated—the people (being protected in their lives and property) became numerous and improved—good roads were made almost every where—the cities had baths, and aqueducts, and splendid buildings, not much inferior to those of Italy herself.

This state of comparative happiness, prosperity and improvement continued until the Roman empire, the most splendid, the most magnificent, and the most useful to human advancement the sun ever shone upon, began to totter under her own unwieldy weight, and the fierce assaults of the Goths, Vandals, and other barbarians of the "Northern Hive."

In the confusion which followed the dismemberment of the Roman empire, agriculture, in common with other occupations, suffered great injury. The elegant and useful arts not only ceased to advance, but actually retrograded. The security of a steady and energetic government was wanting. No man felt the assurance, when he sowed in the spring, that he would be allowed to reap in the autumn. He consequently lost the most influential incentive to exertion. The arts of war were in higher estimation than those of peace. The cultivators of the soil were looked upon as an inferior race, and in general were so in point of fact.

For more than a thousand years, agriculture ceased to make advances, even in the most favored spots of Europe; while, in the greatest part of what was once the Roman empire, it became greatly neglected and deteriorated. The estates of the church were the best cultivated, both because the priests were the best informed in agriculture, as well as in other branches of knowledge, and because, during the destructive wars which were of almost constant occurrence, the contending parties generally respected the property of the church.

Agriculture, like the arts and sciences in general, soon felt the influence of the discovery of the art of printing and the revival of letters. After the restoration of letters, Lombardy and Tuscany were foremost in improvements. The mildness of the climate, the richness of the soil, and the facility of irrigating their fields, all contributed to this result. From improved agriculture, commerce and manufactures received an impulse. The worthy example of these states was, in process of time, followed by France, Holland and the Netherlands, by the German States, and by the British Islands.

Until the middle of the eighteenth century, however, it is perhaps safe to say, that agriculture and rural arts, even in the most improved countries of Europe, scarcely equalled their condition during the flourishing state of the Roman empire.

In the British Islands, the successive conquests of the Saxons and Normans, the constant foreign wars, or the several dissentions at home, all tended more or less to retard improvement of every kind. When we compare the population of the several nations of Europe now, with what they possessed at the date of the discovery of America—when we consider the very limited commerce carried on by them with other countries—the frequent famines and pestilences which prevailed—and the very small numbers engaged in manufactures—we can ea-ily judge how imperfect must have been the husbandry of the period.

In England, during the reign of Henry VIII. considerable advances were made in agriculture. The first book on English husbandry was published by Sir A. Fitzherbert. The book of husbandry was followed by the book of surveying and improvements. The art continued to make steady progress during the reign of Elizabeth.

The agriculture of Scotland and Ireland was in a worse state than that of England. The accession of the house of Stuart to the throne of England, instead of benefiting rather retarded agriculture in Scotland; while the civil wars and internal disquietudes of Ireland, then, as now, operated as powerful checks to cultivation. From the union of Scotland with England, down to the conclusion of the American war, no very decided improvements in husbandry, or in the management of live stock, took place, except the introduction into more general use of the drill system, by Jethro Tull, and the practice of Bakewell, in the raising of stock. But since the middle of the last century, to the present time, the advancement of the rural arts in general, has been steady and rapid. The whole of Great Britain almost, may be said to have acquired a new aspect. The people have become numerous and prosperous, the value of lands has tripled, while whole districts of country, before deemed barren and unfit for cultivation, are now seen yielding luxuriant crops. This change is no doubt attributable to several causes; but I believe none have been more operative than the various associations and societies for the promotion of agriculture and rural economy. Among these may be named, as the most distinguished, the Highland societies of London and Edinburgh, and the British Board of Agriculture.

As our society is instituted for similar purposes, it may be useful to take a rapid glance at the leading improvements in husbandry and rural economy which these associations have been instrumental in introducing into more general use. We can then inquire how far such improvements as are applicable to this country, are known and practised by our farmers—how such as are not in use, can best be introduced—and what further the society can suggest for the considerable and adoption of the farming community.

Until the middle of the last century, a considerable portion of the arable land of Great Britain was held in common among the inhabitants of the numerous villages, as well as among the class of small farmers. The tenure was also for short terms, as one or two years in many instances, or the occupants were tenants at will. Both these causes tended greatly to retard improvement; for it could not be expected that individuals would expend much labor or money upon what they had no assurance they should possess for more than a season. One of the first and most important ob-

jects the societies above mentioned had to accomplish, was to point out the evils in this system, and the advantages that would accrue from the granting of longer leases, and the holding of land severalty. In Scotland, most of the land not cultivated by the proprietors is now held in severalty, and on leases varying from fourteen to twenty-one years. In England, the practice of granting long leases is not so universal, and much of the land is yet held in common. To this is justly attributed the slower advancement of agriculture in some parts of that kingdom than in Scotland.

With long leases, attention to rotation of crops became more general—greater pains were taken to prepare the soil for the several crops, by thorough ploughing, the removal of weeds, stones and bushes, the making of suitable drains, and the application of manures, where the soil had become exhausted by successive crops.

In the agricultural districts of Scotland, those who are there denominated farmers, are generally men of considerable capital and education—who have made the theory and practice of their important art the subject of particular study. The district most improved by art, though not naturally the most fertile, is that of the Lothians. But no part of Scotland is so remote as not to have felt the influence of the spirited exertions of individuals and associations within the last half century for the improvement of rural operations.

Within my own time, in an extensive district amidst the Grampian hills, on the banks of the River Tay, and the lake of the same name, the change in the face of the country and in the character of the people, has perhaps not been surpressed even in this wonder working country.

Within a century, that district was occupied by a semi-barbarous people—"the Children of the Mist"—the cateran followers of Rob Roy, occupied a part of it, and lawlessly roamed through the rest. The agriculture was scanty, and of the worst kind—the breed of cattle was so poor as scarcely to be worth stealing—the people had little industry—were ill fed, and worse clad. Now, the picture is very different: No part of the empire possesses a more industrious or a more moral people. They are well informed and well clad, and their farms yield crops scarcely equalled by the fields of the Lothians. The breed of cattle, too, has not been less improved than the farms. All this has been accomplished since the commencement of the present century, in a district of country less favored by nature than the despised and neglected regions of the northern parts of this state. I mention this to show what wonders can be accomplished under persevering industry, guided by correct principles, and encouraged by the influence of men of property and information.

I believe it is generally conceded that the theory and practice of agriculture are, at this time, as well understood in England and Scotland, as in any part of the world. It is well known that few countries have been less favored by nature, either as to soil or climate, for agriculture or horticulture, than Scotland; and yet few countries have done more for the advancement of these branches than she has done. My time will permit me merely to enumerate the leading means by which this eminence has been attained;—some of the causes which retarded improvement, I have already mentioned.

The direct causes of the advanced state of Scotch husbandry, are chiefly referable to the following: 1st. Careful tillage—thorough ploughing, to pulverize the soil—the removal of weeds, stones, stumps, bushes, &c.—the proper draining of fields, and the use of manures to such soils as were exhausted by long tillage, or were naturally poor. 2d. The regular rotation of crops, varying these according to the nature of the soil. 3d. The general introduction of turnips and clover. 4th. The use of lime, marl, alga marina, and compost manures. 5th. The introduction of improved implements of husbandry—as the plough, the cart, the threshing machine, the fanners, the rollers, harrows, &c. &c.

The triumph of modern over ancient husbandry is due to the introduction and use of these improved implements, more than to any other cause. The ancients separated their grain on a threshing floor erected in the fields, by means of the feet of oxen, or by rude instruments, which injured the grain, and consumed much time; and they depended on the winds for winnowing the seed. The construction of mills for grinding grain, also distinguishes modern husbandry from the ancient. The modes practised by the latter were exceedingly rude: the grain was pounded between stones, or in some kind of mortar. It is not very long since this practice obtained in some parts of Europe, and is probably prevalent at this moment in some of the new settlements of the United States.

Having given this sketch of the progress of husbandry in the old world, I hope the society will indulge me by permitting a few remarks on the agriculture and rural economy of this state.

When the province of New-York came into the possession of Great Britain, agriculture was in a very low state at home. Most of those who emigrated from Europe brought with them little skill and less capital. Land was of little value, and therefore easily obtained. Every body could be (what in Europe is still considered a great distinction) a landed proprietor. Most of the emigrants, therefore, preferred hardships, as proprietors, to comfort as domestics and laborers. The great mass of farmers became lords of the soil, and managed their farms themselves, aided by their children, seldom being able to find people to hire, even if they possessed means for paying them. The virgin soil, however, was rich, and yielded freely, without much labor or expense of culture. Some extensive estates, or manors, existed, in which the farms were in the possession of tenants holding leases, some of which were perpetual—or, as long as water ran or grass grew. The rents were almost nominal. I believe these were the worst managed farms in the province; and the remark is as applicable, so far as I have seen, at the present day, as at any former period.

The revolution, and consequent separation from the mother country, made no change in the general method of farm management. The farms have, until within a very few years, been cultivated with little attention to the improved agriculture of foreign countries. Crop after crop was taken off, as long as the produce was worth the trouble of cultivation, until the soil became exhausted. Little care was taken to preserve manure—no attention was paid to rotation of crops—stones and stumps were left in the field unmolested—if there existed a wet spot of ground, the ploughman went round it, leaving possession to weeds and frogs—if a small stream traversed a field, it was permitted to meander in serpentine courses, to ornament the landscape by its luxuriant growth of bushes—drains were hardly thought of, and when made, were scarcely ever covered, no matter how abundant stones to fill them might be in the contiguous fields. The effect of this system has been, that in almost all the old counties of this state, the soil has been exhausted, the culture of wheat is given up, and many extensive districts are now chiefly abandoned to pasturage, being no longer fit for profitable tillage. On many farms, the wood has been destroyed, while no attempt was made to remedy the injury by planting. The fences, or enclosures, were of the rudest and worst kinds, while hedges were in many counties scarcely ever seen Thus beauty and utility were alike disregarded.

Within the last few years, in several counties, much improvement has taken place in every thing that relates to agriculture; but it is far from being general in any county, and many of the remarks already made, are still applicable, in the fullest extent, to much the greater number of farms in the districts immediately around us.

The great ends contemplated in the institution of this society, were, the improvement of the various branches of husbandry, and the several arts connected with them. Much may be accomplished by a concentration of efforts. We have a great deal to encourage us in the success which has attended the exertions of other associations for the promotion of various useful arts and sciences. It is to be wished that gentlemen largely interested in landed property would unite with us, and by their purse and influence, as well as example, aid in promoting objects by which their private interests and the good of the public at large will be simultaneously advanced.

It is desirable that there should be union and uniformity in our efforts. To promote this, I would suggest the propriety of organizing in each county an auxiliary society, and that at the annual meetings of this society, in addition to the permanent members, there should be a delegate from each of the county societies. I would further suggest, the propriety of appointing an executive committee here, at the seat of government, to act during the recess of the State Society in its behalf, to carry into operation such plans as may be adopted for advancing the cause in which we are engaged.

At the last session of the legislature, an act incorporating a state agricultural school was passed. Considerable progress has been made in procuring subscribers to the stock of this school. It is intended, should the necessary amount be subscribed, to select a farm in this vicinity, of the extent of at least five hundred acres, on which are to be erected, on the most improved plans, suitable farm buildings. It is also in contemplation to procure specimens of the most improved implements of husbandry; and that the management of the farm should be conducted upon the most approved principles. Teachers are to be attached to it, for instructing pupils in the theory and practice of agriculture. It is intended, in short, to make it a school for the education of skilful and scientific practical farmers. At present it is uncertain how far these objects can be realized. That such a school is wanted, no one will deny; and that such a school, properly conducted, would be of incalculable benefit to the farming interests of this state, admits of as little doubt.

Something more is necessary than can be obtained at such a school as the agricultural is expected to be. If it be intended to make the pupils of the school work on the farm, for the double purpose of earning enough to support themselves, and of making them skilful in the practical details of farming, excepting in the winter season, little leisure will be afforded for study.

It appears to me, that there ought to be established here, at the seat of government, an institution founded by the state, and liberally endowed, wherein a thorough education could be obtained in the liberal arts and sciences. The means of the state are ample for the purpose; and as no such institution at present exists within the bounds of the commonwealth, it would seem that no place is so suitable for its location as the seat of government.

At such an institution, lectures on the science of agriculture might be given during the session of the legislature, so that all who took an interest in the subject might have the benefit of them. The kindred sciences of chemistry, mineralogy, geology and natural history, could likewise be

taught. The present time is auspicious for the purpose. A geological survey of the state is now in progress, under the authority of the government. A most important collection of objects in geology, mineralogy, zoology and botany, must of necessity be the result. It is therefore highly desirable that a suitable museum be provided for the reception and preservation of this collection. What place so proper as the capitol of the state? Such a collection once made, would be a nucleus around which future additions would accumulate, until at last it might rival in utility, if not in extent, the collection of the Garden of Plants, in Paris If this first step be taken, under the auspices of the state, there is every reason to hope, that in no long time, we shall possess an university, not in name, but in fact—an university, where the more elementary branches usually taught in academies and colleges should be excluded, while chemistry, agriculture, mining, engineering, geology and mineralogy, natural history, political economy, mental and moral philosophy, and such other branches as are of sufficient interest to attract pupils, could be thoroughly studied.

The limits of this discourse will not permit me to enter more fully on this subject; I merely throw out the suggestion for the consideration of the society, so that, if deemed important, it may be acted upon without loss of time.

At the agricultural farm, pupils might be taught the management of farms, the raising and taking care of stock, &c. Botany and horticulture might likewise be taught and practised there; but the institution in the city, it appears to me, ought to be the place where such as had leisure, or inclination and means, to study profoundly, should resort.

No business is more important, none more honorable, than agriculture and its kindred arts. The wealth, the power, the morality of a nation, are closely connected with it. Let, therefore, the wealthy, who have the greatest interest, be foremost in its promotion. Let them make gentlemen farmers of their sons, instead of professional men and merchants. Let them give an education such as befits their prospects, and the honorable position they are to occupy in society.

If this were more generally done, we would less frequently see the well earned property of the fathers squandered by the children, or the high professional character acquired by the parent, sullied by the incapacity and indolence of a son, who feels not the stimulus of necessity, to make him tread in the honorable course pointed out to him. The country would become the residence of the most worthy and most gifted members of society;—the wilderness would blossom as the rose, and none would be found to live in cities, but such as could not afford to dwell in the country, or such as, for the love of gain, could submit to temporary banishment for the sake of spending the evening of their days, each under his own vine and fig-tree, remote from the noise and turmoil of the multitudinous city. To all, then, who wish to live in health, comfort and independence, we would say—

"Venerate the plough,
"And o'er your hills and long withdrawing vales
"Let Autumn spread its richest treasures to the sun,
"Luxuriant and unbounded."

OF THE NATURE AND USES OF THE PRODUCTS OF VEGETATION.

The elements that enter into the composition of plants, are but few in number; but the proportions in which they are combined establish so great a difference in the products of vegetation, that it seems almost incredible, that these should be the effects of so small a number of principles, varying only in the proportions in which they are united.

The aliments of plants are water, air, and manures: these substances absorbed by the leaves, the fruits, or the roots, furnish, by analysis, carbonic acid, hydrogen, a little azote, and some earthy and saline principles: it is from these materials that the almost endless variety of widely differing products of plants is formed by their organs.

During the progress of vegetation these products are found to undergo successive changes; that which is first acid becomes sweet; that which is tender becomes hard, and all is owing wholly to the constant changes taking place in the proportions of the constituent principles; and one is astonished at finding that the most exact analysis of substances possessing the most opposite characteristics, detects no other difference than some hundredths more or less in the proportions of their elements.

When a plant has completed or terminated its various stages of vegetation, the dead remains, if exposed to the action of the same agents, such as air, water, and heat, suffer a succession of retrograde changes; they are gradually decomposed, and their constituent principles enter into combination with those of the bodies by which they are acted upon; thus the dead plant is entirely governed by those invariable physical and chemical laws, which in the living plant are governed and modified by the laws of vitality, the action of which regulates that of all external agents, and produces results which we can neither explain nor imitate.

Though great caution should be used when endeavoring to establish an analogy between two modes of existence differing so widely as those of animals and vegetables, it must be perceived that there is a resemblance in the manner in which both are nourished.

Animals inhale air by their lungs, or absorb it by glands scattered over their bodies; they are nourished by solid aliments received into their stomachs, or into some analogous organ; plants absorb air by their leaves and fruits, and imbibe through their roots the nutritive juices contained in the earth. In animals, the juices circulate through every part, and pass into all the various organs, in which they are elaborated, in order to form all the products which belong to this kingdom; in vegetables the juices are carried into the bark, the alburnum, the pith, the wood, the leaves, and the fruit, by tubes and glands, which are arranged in hexagonal cells, and are very numerous in the parenchyma, and in the cortical layers of the bark; the juices undergo particular modifications in the various organs, and form in each one of them new compounds differing from each other

The leaves receive the sap in vessels of the most delicate texture; in these it is elaborated, and combined with substances absorbed from the atmosphere, whilst the surplus of water, as well as the oxygen of the carbonic acid from which they have extracted the carbon, is given out by the leaves through their transpiring pores. The sap, after experiencing these changes, passes into the organs of the plant, where it is subjected to new elaborations.

The leaves are to plants, what the lungs are to animals; those receiving the sap, as these do the blood, to be mingled in them with the gas absorbed from the atmosphere, and to pass thence into the great vascular system; and from both leaves and lungs the superfluous water and gases are thrown out into the air.

We likewise find a great variety of structure amongst the various species of which the two kingdoms are composed; some have a soft, loose, parenchymatous formation; others present a harder and dryer tissue; this, in vegetables, is owing to the predominance of carbon; in animals, to that of phosphate of lime; these two principles, though very different, form the basis of their separate structures. The same elements enter into the composition of all the products, whether animal or vegetable; the difference between them arising solely from the different proportions of the constituent principles.

An analysis of the principal products of vegetation has been made with great care by Messrs. Gay-Lussac and Thénard. The results of these researches enable us already to draw some conclusions in regard to the character of any one of the products, according as this or that principle may predominate in its composition; or according to the nature of the elements combining to form it. Thus we know,

1. That a vegetable substance is acid when it contains no azote, and when the quantity of oxygen in proportion to that of hydrogen, is greater than is necessary for the formation of water.

2. That when the proportion of hydrogen to that of oxygen is greater than is necessary for the formation of water, the substance is oily, resinous, alcoholic, or ethereal.

3. That when the quantity of oxygen and hydrogen contained in a substance is the same as in water, the substance is analogous to sugar, gum, fibre, &c.

I shall in this work speak only of such products of vegetables as are most common, or of the most extensive use, either for domestic purposes, or in the arts: and I shall endeavor as much as possible to follow the order prescribed by the analogy of their constituent principles.—*Chaptal's Chemistry.*

NOTICE OF THE FARM OF J. F. EDMUNDS, OF CHARLOTTE.

In fulfilling my engagement to visit the best managed farms, and report to the readers of the Register such points of management as seem to be most deserving of imitation, I find it a difficult task to determine what models to select. There are many plantations in Charlotte, Prince Edward, Halifax, &c. on which the best management exists, on the old plan of cultivation: that is to say, their management denotes economy, industry, good arrangement, and neat cultivation. Such plantations have been very profitable, in times past, to their owners; but this profit has been derived from the cultivation of tobacco. And it must not be disguised, that most of the estates that have produced large tobacco crops, have greatly deteriorated in value on account of the paramount attention required by this crop, to the neglect of all permanent improvement. I, by no means, intend to assert, that tobacco culture is incompatible with improvement. There are many successful tobacco cultivators who have improved their estates; but the great majority of the thorough-going tobacco cultivators, have adopted the three-shift system—have no standing pastures—raise no hay—sow but little clover—and bestow but little attention on the subject of manures. The planters, who are deriving the most profit from their plantations, are practical men, who have been successful cultivators of tobacco, and who have devoted a part of the labor and resources of their farms to raising manure and the grasses. The sight of such a plantation, a few years ago, in the tobacco region of Virginia, was like an oasis in the desert—as rare as it was refreshing—but their number is annually increasing; and there are now considerable districts of country, in Charlotte and Prince Edward counties, that present a view of good meadows, well manured lots, and large fields well set in clover. But, without indulging further in general remarks, I will proceed to give a short account of the successful management of the planters residing on Wardsfork creek, in the county of Charlotte. The planters in this part of the county at first acquired their cele-

brity by making high priced tobacco. A few years back, when the tobacco that suited the French market commanded higher prices than any other description of tobacco, almost every planter, without a single exception, known to the writer of these lines, that raised a tobacco crop on Wardsfork, obtained a good price for it. The general character of this tobacco, was not only yellower, but it possessed a finer texture, and contained more oil, than the tobacco grown in other parts of the county. Such general success could scarcely be attributed alone to superior management; and it is now a prevailing opinion, that the Wardsfork lands possess some ingredient very favorable to the growth of tobacco; and as these lands have been supposed by many to contain lime, in some of its combinations, I have but little doubt, that it is the marl ingredient in the Wardsfork soils, that renders them so peculiarly adapted to the growth of both tobacco and clover. There is a recuperative energy in the soil on this little stream, that is rarely met with in other soils. The sub-soil, after a few years exposure to the sun and frosts, when aided by a little manure, is almost as productive as the original surface soil.

As a specimen of the Wardsfork management, I will solicit the readers attention to a hasty outline of the farming operations of John F. Edmunds, esq. In riding up to Mr. E.'s house, the greater part of his cleared land appears in full view from the road; and nearly the whole of his uncultivated land is seen set in clover or herd's grass. Mr. E. cultivates both corn and tobacco on clover leys; and considers clover to be well adapted to precede a tobacco crop, provided plaster is used on the tobacco as soon as it is weeded out. He thinks that tobacco is a very precarious crop to follow clover, unless plaster is used. There are some features in his management different from his neighbors; and, in fact, different from the management of any planter with whom I am acquainted, in the tobacco section of the state. The oat crop, is almost universally cultivated in this part of the state, and is generally considered one of the few crops peculiarly adapted to our latitude and soil; but Mr. E. does not sow an oat grain on his plantation. He considers oats a very exhausting crop—they require seeding at a very busy time to the tobacco planter, and are taken from the field, at a time of the year, when the land is most exposed to injury from the sun. He uses herds grass hay as a substitute for oats; and always makes enough hay for his teams, and frequently sells a part of the produce of his meadows. Mr. E. sows down the whole of his corn land and tobacco land in wheat. He thinks that the tobacco crop is the very best crop to precede wheat, and contends that it is better than a heavy clover ley. His profits from his wheat crop are much greater than he ever realized from the oat crop. In addition to the flat land already set in herds grass, Mr. E. has lately sown thirty acres of the best of his flat land on Wardsfork. And as his meadows now yield a sufficiency of hay to supply his plantation, he expects to sell annually the produce of the thirty acres. He thinks our climate is well adapted to the growth of timothy and herds grass; and he has raised crops of hay as large, per acre, as the highest reported account of the produce, per acre, of any northern farm. The planters on Wardsfork, generally, have paid great attention to meadows. They have been very successful in reclaiming flat lands, that lie too low for constant cultivation, and putting them down in grass to mow. And there is a peculiarity about their mode of preparation of a scene for meadow, that is worthy of notice. Their meadow lands are all thrown up in beds, of the width of about twenty feet. I observed this management, particularly, on the plantation of Capt. Henry A. Watkins, who is a very successful cultivator of herds grass.

The plantation under review, has been greatly improved by the application of putrescent manures. It is the subject to which the energies of the farmer are principally directed. The proprietor has entered upon this subject with great zeal and enthusiasm. If all the manure, raised on his farm, were applied to the tobacco crop, he thinks it would manure two hundred thousand tobacco hills, or the whole of the land cultivated in tobacco. The leaves of the forest, swamp mud, alluvial deposite on the creek flats, the manure of the hog pen, of the stables, the farm yard, are all brought into requisition, to furnish their aid towards the permanent improvement of the soil. During my last visit to Mr. E.'s plantation, I found him engaged in a new and interesting branch of his subject. He had selected a large section of the thinnest part of an enclosed field, for the purpose of applying upon it loam from his creek flat. The spot selected, on the creek, was an almost inexhaustible heap of rich loam, many feet deep. There were two wagons, one team of mules, and two hands, engaged in hauling out this mud. While the driver was carrying off one load, the other hand filled the other wagon, which had no team attached to it, and as soon as the driver returned, he geared his mules to the wagon loaded in his absence, and left his own to be again loaded. By this process, an incredible quantity of mud could be carried out in a short time. The loaded wagon was drawn by fine strong mules. The loads were deposited in heaps, of a load each, four or five yards apart. Mr. E. informed me that he had ordered an ox cart to be made, for the purpose of aiding in hauling out mud and other manure. He said, he had determined to set apart two hands, whole sole employment, through life, should be to make, collect, haul out and spread manure, except when their services were much needed in harvest, and on such days as they were prevented, inclement weather, from attending to their vocation. I asked him, if he meant that the labor of these hands should substitute the labor of his field hands, in making and hauling out manure. He said not: and that he meant to double his exertions with his field hands on this subject. If Mr. E.'s success in future, be equal to his success in raising manure for the last two or three years, it requires but a simple calculation to prove, that every acre of land on his farm may be made rich in a few years. The manure obtained from his hog yard, and the mud from his flat land, are resources but seldom availed of in this section of country, and seem to be deserving of attention by other farmers. Mr. E is not alone in his exertions to raise large quantities of manure. The subject begins to command that attention, generally, which it so justly merits. The information obtained on this subject, by the circulation of the Farmers' Register, is convincing many of its great importance. Many farmers are asking the questions—"Why is it, that the farmers in the northern states, are reaping three or four thousand dollars nett profit, from farms of two hundred acres extent? Why is it, that many farms in France, of ten or fifteen hundred acres extent, support a thousand sheep and a proportionate number of neat cattle? Why is it, that the product of a Flemish acre exceeds the product of five of our best cultivated acres? Why is it that land in the interior of the state of New-York, as far distant from the large markets as our interior, commands a price of from sixty to one hundred dollars, that was originally poorer than the tobacco districts of Virginia?" The answers to these questions, are, *that they understand and practice the art of raising putrescent manures, and the artificial grasses.* It is true, that such great improvements have been partially effected by the application of mineral manures; but mineral manures are in the reach of more than half of the farmers of this state, and the resources for making putrescent manures, are fully sufficient to employ the leisure time and energies of those who are deprived of the aid of mineral manures.

Mr. E. defends, with great tenacity, his practice of suffering his corn stalks to remain on his fields, to be ploughed under with the wheat, instead of hauling them to his farm pen. His reasons, for this practice, are, that the stalks prevent his land from washing; that they benefit the land to some extent, scattered as they are, through the field; that it is unnecessary labor, to haul them up, because his supply of leaves is almost inexhaustible, and he can haul a load of the latter, in as short a time as he can haul a load of stalks; and he considers the leaves fully as valuable. But, notwithstanding the plausibility of this reasoning, I will hazard the opinion, that it is an error in management, not to haul corn stalks to the farm pen. The planter is almost compensated for his labor in hauling them, by feeding them early to his stock. The loss from evaporation, when they are suffered to stand, or, when badly covered by the plough, (as they generally are,) is considerable; and, as an absorbent of the fugitive portion of the farm-pen manure, they answer a much better purpose than leaves.—*Farmers' Register.* E.

OUTLINE OF THE FIRST PRINCIPLES OF HORTICULTURE.

BY JOHN LINDLEY, F. R. S., &c. &c.

FRUIT—(*Continued from page* 106.)

231. As the latter substance cannot be obtained at all in the dark, is less abundant in fruit ripened in diffused light, and most abundant in fruit exposed to the direct rays of the sun, the conversion of matter into sugar occurs under the same circumstances as the decomposition of carbonic acid. (141 and 279)

232. Therefore, if fruit be produced in situations much exposed to the sun, its sweetness will be augmented.

233. And in proportion as it is deprived of the sun's direct rays, that quality will diminish.

234. So that a fruit which when exposed to the sun is sweet, when grown where no direct light will reach it will be acid; as pears, cherries, &c.

235. Hence acidity may be corrected by exposure to light; and excessive sweetness, or insipidity, by removal from light.

236. It is the property of succulent fruits which are acid when wild, to acquire sweetness when cultivated, losing a part of their acid.

237. This probably arises from the augmentation of the cellular tissue, which possibly has a greater power than woody or vascular tissue of assisting in the formation of sugar.

238. As a certain quantity of acid is essential to render fruit agreeable to the palate, and as it is the property of cultivated fruits to add to their saccharine matter, but not to form more acid than when wild, it follows that in selecting wild fruits for domestication, those which are acid should be preferred, and those which are sweet or insipid rejected.

239. Unless recourse is had to hybridism; when a wild insipid fruit may be possibly improved, (204.) or may be the means of improving something else.

240. It is very much upon such considerations as the foregoing that the rules of training must depend.

IX. SEED.

241. The seed is the ovulum arrived at perfection.

242. It consists of an integument enclosing an *embryo*, which is the rudiment of a future plant.

243. The seed is nourished by the same means as the fruit; and, like it, will be more or less perfectly formed, according to tho abundance of its nutriment.

244. The plant developed from the embryo in the seed, will be in all essential particulars like its parent species.

245. Unless its nature has been changed by hybridising. (204.)

246. But although it will certainly, under ordinary circumstances, reproduce its species, it will by no means uniformly reproduce the particular variety by which it was borne.

247. So that seeds are not the proper means of propagating varieties.

248. Nevertheless, in annual or biennial plants, no means can be employed for propagating a variety, except the seeds; and yet the variety is preserved.

249. This is accomplished solely by the great care of the cultivator, and happens thus.

250. Although a seed will not absolutely propagate the individual, yet as a seed will partake more of the nature of its actual parent than of any thing else, its progeny may be expected, as really happens, to resemble the variety from which it sprung, more than any other variety of its species.

251. Provided its purity has not been contaminated by the intermixture of other varieties.

252. By a careful eradication of all the varieties from the neighborhood of that from which seed is to be saved, by taking care that none but the most genuine forms of a variety are preserved, as seed-plants: and by compelling by transplantation a plant to expend all its accumulated sap in the nourishment of its seeds, instead of in the superabundant production of foliage, a crop of seed may be procured, the plants produced by which will, in a great measure, have the peculiar properties of the parent variety.

253. By a series of progressive seed-savings upon the same plan, plants will be at length obtained, in which the habits of the individual have become as it were fixed, and capable of such exact reproduction by seed, as to form an exception to the general rule; as in turnips, radishes, &c.

254. But if the least neglect occurs in taking the necessary precautions (252) to ensure a uniform crop of seed, possessing the new fixed properties, the race becomes deteriorated, in proportion to the want of care that has occurred, and loses its characters of individuality.

255. In all varieties those seeds may be expected to preserve their individual characters most distinctly which have been the best nourished (243.); it is consequently those which should be selected in preference for raising new plants, from which seed is to be saved.

256. When seeds are first ripened, their embryo is a mass of cellular substance, containing starch, fixed carbon, or other solid matter in its cavities; and in this state it will remain until fitting circumstances occur to call it into active life.

257. These fitting circumstances are, a temperature above 32° Fahr. a moist medium, darkness and exposure to air.

258. It then absorbs the moisture of the medium in which it lies, inhales oxygen (278), and undergoes certain chemical changes; its vital powers cause it to ascend by one extremity for the purpose of finding light, and of decomposing its carbonic acid (279.), by parting with its accumulated oxygen, and to descend by the other extremity for the purpose of finding a constant supply of crude nutriment.

259. Unless these conditions are maintained, seeds cannot germinate; and, consequently an exposure to light is fatal to their embryo, because (278.) oxygen will not be absorbed in sufficient quantity to stimulate the vital powers of the embryo into action, for the purpose of parting with it again, by the decomposition of the carbonic acid that has been formed during its accumulation.

X. SAP.

260. The fluid matter which is absorbed either from the earth or from the air is called sap.

261. When it first enters a plant it consists of water holding certain principles, especially carbonic acid, in solution.

262. These principles chiefly consist of animal or vegetable matter in a state of decomposition, and are energetic in proportion to their solubility, or tendency to form carbonic acid by combining with the oxygen of the air.

263. Sap soon afterwards acquires the nature of mucilage or sugar, and subsequently becomes still further altered by the admixture of such soluble matter as it receives in passing in its route through the alburnum or newly formed woody tissue. (65.)

264. When it reaches the vicinity of the leaves it is attracted into them, and there, having been exposed to light and air, is converted into the secretions peculiar to the species.

265. It finally, in its altered state, sinks down the bark, whence it is given off laterally by the medullary rays, and is distributed through the system.

266. No solid matter whatever can be taken up by the roots; for this reason, metals, which in the state of oxydes are poisonous, are perfectly harmless in their metallic state, as mercury; and this is, no doubt, the cause why liquid manure, which contains all the soluble parts of manure in a fluid state, acts with so much more energy than stimulating substances in a solid state.

267. The cause of the motion of the sap is the attraction of the leaf-buds and leaves.

268. The leaf-buds called into growth by the combined action of the increasing temperature and light of spring, decompose their carbonic acid (279.), and attract fluid from the tissue immediately below them; the space so caused is filled up by fluid again attracted from below, and thus a motion gradually takes place in the sap from one extremity to the other.

269. Consequently the motion of the sap takes place first in the branches and last in the roots.

270. For this reason a branch of a plant subjected to a high temperature in winter, will grow while its stem is exposed to a very low temperature.

271. But growth under such circumstances will not be long maintained, unless the roots are secured from the reach of frost; for, if frozen they cannot act, and will, consequently, be unable to replace the sap of which the stem is emptied by the attraction of the buds converted into branches, and by the perspiration of the leaves. (XII.)

272. Whatever tends to inspissate the sap, such as a dry and heated atmosphere, or an interruption of its rapid flow, or a great decomposition of carbonic acid by full exposure to light, has the property of causing excessive vigor to be diminished, and flower buds to be produced.

273. While, on the other hand, whatever tends to dilute the sap, such as a damp atmosphere, a free and uninterrupted circulation, or a great accumulation of oxygen in consequence of the imperfect decomposition of carbonic acid, has the property of causing excessively rapid growth, and an exclusive production of leaf-buds.

274. Inspissated or accumulated sap is, therefore, a great cause of fertility.

275. And thin fluid, not being elaborated, is a great cause of sterility.

276. The conversion of sap into different kinds of secretion is effected by the combined action of *Air* (XI.), *Light* (XI.), and *Temperature*.

XI. AIR AND LIGHT.

277. When an embryo plant (242.) is formed within its integuments, it is usually colorless, or nearly so; but, as soon as it begins to grow, that part which approaches the light, (the stem) becomes colored, while the opposite extremity (the root) remains colorless.

278. The parts exposed to the air absorb oxygen at night, absorb carbonic acid and part with oxygen again in day-light; and thus in the daytime purify the air, and render it fit for the respiration of man.

279. The intensity of this latter phenomenon is in proportion to the intensity of solar light to which leaves are directly exposed.

280. Its cause is the decomposition of carbonic acid, the extrication of oxygen, and the acquisition by the plant of carbon in a solid state: from which, modified by the peculiar vital actions of species, color and secretions are supposed to result.

281. For it is found that the intensity of color and the quantity of secretions are in proportion to the exposure to light and air, as is shown by the deeper color of the upper side of leaves, &c.

282. And by the fact that if plants be grown in air from which light is excluded, neither color nor secretions are formed, as is exemplified in blanched vegetables; which, if even naturally poisonous, may, from want of exposure to light, become wholesome, as celery.

283. When any color appears in parts developed in the dark, it is generally caused by the absorption of such coloring matter as pre-existed in the root or other body from which the blanched shoot proceeds, as in some kinds of rhubarb when forced.

284. Or by the deposition of coloring matter formed by parts developed in light, as in the subterranean roots of beets, carrots, &c.

285. What is true of color is also true of flavor, which equally depends upon light for its existence; because flavor is produced by chemical alterations in the sap caused by exposure to light. (229.)

286. The same thing occurs in regard to nutritive matter, which in like manner is formed by the exposure of leaves to light. Thus the potato when forced in dark houses contains no more amylaceous matter than previously existed in the original tuber; but acquires it in abundance when placed in the light, and deposites it in proportion as it is influenced by light and air. Thus, also, if peaches are grown in wooden houses, at a distance from the light, they will form so little nutritive matter as to be unable to support a crop of fruit, the greater part of which will fall off. And for a similar reason, it is only the outside shoots of standard fruit trees that bear fruit. Considerations of this kind form in part the basis of pruning and training.

287. Light is the most powerful stimulus that can be employed to excite the vital actions of plants, and its energy is in proportion to its intensity; so that the direct rays of the sun will produce much more powerful effects than the diffused light of day.

288. Hence, if buds, that are very excitable are placed in a diffused light, their excitability will be checked.

289. And if buds that are very torpid are exposed to direct light, they will be stimulated into action.

290. So that what parts of a tree shall first begin to grow in the spring may be determined at the will of the cultivator.

291. This is the key to some important practices in forcing.

292. This should also cause attention to be paid to shading buds from the direct rays of the sun in particular cases: as in that of cuttings, whose buds, if too rapidly excited, might exhaust their only reservoir of sap, the stem, before new roots were formed to repair such loss.

293. As plants derive an essential part of their food from the air (280.) by the action of light, it follows that in glass-houses those which admit the greatest portion of light are the best adapted for purposes of cultivation.

294. The proportion of opaque matter in the roof of a glass-house constructed of wood varies from ⅓ to 1-7—that of an iron house does not exceed 1-23.

295. Therefore iron-roofed houses are in this respect better suited for cultivation than wooden-roofed houses.

296. And it has been found by experiment, that light passes more freely through a curvilinear than through a plain roof, and through glass forming an acute angle with the horizon than through perpendicular glass, it follows that a curvilinear roof is best, and a plain roof with glass perpendicular sides the worst adapted to the purposes of the cultivator.

297. For the same reason common green glass is less fitted for glazing forcing-houses than white crown glass.

298. Poisonous gases in very minute quantities act upon vegetation with great energy. A ten-thousandth part of sulphurous acid gas is quickly fatal to the life of plants; and hence the danger of flues heated by coal fires, and the impossibility of making many species grow in the vicinity of houses heated by coal fires, or in large towns.—*(To be continued.)*

[*From the Newark Daily Advertiser.*]

FACTS WORTH REMEMBERING.

We place below, in parallel columns, the amount received for public lands, and the annual expenditures of the government from 1821 to 1836, inclusive:

Received on account of the Public Lands.		Expenditures exclusive of the Public Debt.	
1821,.....	1,212,966	1821, ...	10,723,479 07
1822,.....	1,803,581	1822, ...	9,827,643 51
1823,.....	916,525	1823, ...	9,784,154 59
1824,.....	984,418	1824, ...	15,330,144 71
1825, ...	1,216,090	1825, ...	11,490,459 94
1826,..... ...	1,393,785	1826, ...	13,062,316 27
1827,.....	1,494,815	1827, ...	12,653,095 65
1828,.....	1,018,308	1828, ...	13,296,041 45
1829,.....	1,517,175	1829, ...	12,687,216 82
1830,.....	2,329,356	1830, ...	13,229,533 33
1831,.....	3,210,815	1831, ...	13,864,067 90
1832,.....	2,623,331	1832, ...	16,516,388 77
1833,.....	3,069,682	1833, ...	22,713,755 11
1834,.....	4,887,620	1834, ...	18,425,417 25
1835,.....	14,751,600	1835, ...	17,514,950 28
1836,.....	24,500,000	1836, ...	31,435,032 00

HYDROPHOBIA.

St. Andrews, L. C. Feb. 26, 1836.

MESSRS EDITORS—In your paper of the 20th instant, I find a notice copied from the Journal of Commerce, that one of your most respectable merchants had been bitten by a mad dog; and being in possession of a certain remedy for that dreadful disease, hydrophobia, I beg leave to communicate it to you, in the hope that it may be received and applied in the case referred to, before it may be too late. The remedy can in no case do any harm—and I have known it tried in many cases, always with success. I have resided here more than 25 years, and although canine madness is more common here than in any other country, I have never known a fatal case of hydrophobia, when this has been applied. It is universally known and used among Canadians. I am acquainted with six persons who were bitten from eight to fifteen years ago, by dogs that were abundantly proved to be mad, from the fact that animals bitten immediately thereafter, died with every symptom of hydrophobia; but by the use of this remedy are in perfect health. I am aware that a remedy coming from such a distance, and from a stranger, will not be very likely to meet with a very cordial reception: but I am induced to give it in the hope that its evident harmlessness will ensure a trial. It as follows:

Take three spoons full of oyster shell lime, powder it and sift it through a piece of book muslin. To this add a sufficiency of egg to give it a consistency something like soft dough—fry it in a little fresh butter or olive oil. Let the patient eat this cake in the morning, and abstain from food or drink, at least six hours. This dose, repeated for three mornings in succession, is, in all cases, sufficient.

As it may be satisfactory to know something of the character of the writer, I beg leave to refer to you Charles H. Castle, Esq. Cashier of the City Bank, Montreal. Yours, with respect,

—*Canada paper.* GUY RICHARDS.

Department of Health.

HINTS TO PARENTS AND THE SCHOOL MASTER.

[*Extracts from the Economy of Health.**]

SECOND SEPTENNIAD—(7 to 14.)

Schools.—It is in this septenniad, which may be styled, *par excellence*, the scholastic, that the seeds of much bodily ill, and moral evil are sown. In this, and often in the latter part of the first septenniad, the powers of the mind are forced, and those of the body are crippled. The progress of civilization, literature, science and refinement has rendered this state of things unavoidable. It may be mitigated, but it cannot be prevented. Knowledge is power. Bodily strength is now of little use in the struggle for power, riches and fame:—mental acquirements and endowments are now all in all.

Those who are likely to mix much with their fellow-creatures during their sojourn in this world, had better begin to do so in a public school. Knives are sharpened by being rubbed against each other; so are intellects. The flint and the steel will not emit sparks unless they come into collision: neither will brains. The coldest marble and the basest metal will glow with heat by friction; and the solid oak will burst into flame by the same operation. The emulation of a public school will call energies into action that would otherwise lie forever dormant in the human mind.

Whether the scholastic institutions be large or small, public or private, one radical evil is sure to pervade the system of education pursued therein—namely, (and I cannot repeat it too often,) the disproportion between exercise of the mind and exercise of the body—not merely as respects the sum total of each species of exercise, but the mode of its distribution. The grasp at learning is preternatural, overreaching and exhausting The lessons imposed on youth are too long; and so, of course, are the periods of study. The consequence is, that the lesson is not got well, because it is learned amid languor and fatigue of the intellect. The grand principle of education is, or rather ought to be, the *rapid* and the *perfect* acquisition of small portions of learning at a time, the punctual premium being the interval of play In this way, the idea of knowledge would be constantly associated with that of pleasure; and each impression on the juvenile mind being vivid and distinct, would consequently be lasting.

But if the periods of study in the first years of the second septenniad, waere reduced in length, as well as in the whole daily amount, I am far from thinking that the sum total of elementary learning acquired during the scholastic septenniad would be thereby diminished What is lost in letters will be gained in health; and this profitable exchange may enable the youth to sustain those increased exertions of the intellect which devolve on ulterior stages of scholastic and coliegiate discipline. It is to be remembered, also, that the great majority of pupils are designed for other than the learned professions, and to them a MODICUM of health is often of more value than a MAGNUM of literature.

No public school should be without a play-ground; and no play-ground without gymnasium of some kind, for the lighter modes of athletic exercise. The swinging apparatus at the military asylum in Chelsea, seems well calculated for effecting that combination of active and passive exercise, so peculiarly adapted to the human frame in the present state of civilization and refinement. We have more mind and less muscle than the Lacedæmonians; and, therefore, art must accomplish what strength fails to do. It is in a more advanced period of life, that *passive* exercise is to be preferred to *active;* in the second septenniad, the *latter* should have the preponderance. In all gymnastic exercises, however, great regard should be paid to the constitutions of individuals. There are some youths, where a disposition to affections of the heart and great vessels prevails; and to these, all strong exercise is injurious. Those, also, who are predisposed to pulmonary complaints must be cautious of athletic exercises.

Food.—This should be simple and substantial, rather than abstemious. The fabric that is daily building up, should have an ample supply of sound materials.

Beverage.—A great error has been committed by modern mothers, in substituting for the salutary prescription of Pindar, ("water is best,") the daily glass of wine, with cake or condiment, for the smiling progeny round the table after dinner. The juvenile heart dances joyously enough to the music of the animal spirits—and the rosy current of circulation runs its many rounds as rapidly as need be, without impetus from wine. The practice in question is reprehensible on more accounts than one. It early establishes the *habit* of pampering the appetite—a habit that leads

* The author of this work, James Johnson, is one of the most eminen physicians of the age.

to countless ills in after life. It over stimulates the organs of digestion, at a period when their nerves are supersensitive—their excitabilities exuberant, and their sympathies most active and multiplied. If such be the case in youth, can we wonder at the universality of dyspeptic complaints in middle age? It is to be remarked, that this practice is less prevalent among the higher ranks of life, than among the various subordinate grades. It increases as we descend, till we shudder at the sight of liquid fire, exhibited to the sickly infant in the sordid hovel! On such a subject, need I say more? or could I say less? Bad habits are enough *learned*—they ought never to be *taught!*

The passions.—It is in this epoch, as in the previous one, that the PASSIONS of youth should be controlled—even by punishments if necessary. If the BOY is taught, in early life, to respect the feelings, the comforts and the happiness of his playmates and school-fellows, the MAN will afterwards obey the laws of God and his country in society at large.—The tyranny which the strong often exercise over the weak, in schools, and the annoyances which the vicious occasion to the well disposed youth, ought to be punished with ten times more severity than neglect of duty.

Contagion of vice.—Vice is a contagion of the most terrible virulence. It spreads with the rapidity of lightning—and every tainted individual becomes a new focus, both for the concentration and diffusion of the poison! It is a melancholy truth, that, in exact proportion as human beings (whether men, women or children,) become congregated together, *there* will EVIL be engendered, propagated and multiplied. * * * Pupils in all ages were in the habit of teaching each other—MISCHIEF: Lancaster caused them to teach each other—KNOWLEDGE. This last is "mutual *in*struction"—the former is "mutual *de*struction." But the new system did not supersede the old; it was only superadded to it It is, therefore, the bounden duty, as it should be the paramount object, of all parents, guardians and tutors, to circumscribe, as much as possible, this "evil communication," which not only "corrupts good manners," but, perchance, good morals in the bargain!

Objects and ends of education—The two grand or cardinal objects of education, in my humble opinion, are, *first*, to curb the evil propensities of our nature, by *increasing* our knowledge or wisdom—and, *secondly*, to make us useful to society. That learning or knowledge does elevate the mind, humanize the heart, and prevent barbarism of manners, we have the best authority of antiquity. There can be no doubt that these effects flow, more or less, from all kinds of learning or knowledge; they are, however, the more especial results of what may be termed, in a comprehensive sense, CLASSICAL LEARNING—or the study of great authors, modern as well as ancient. But, to obtain the second grand object of education—to become useful members of society, we must acquire knowledge of a very different kind—namely, SCIENCE. It will not be sufficient to study philosophy, belles-lettres, rhetoric, poetry, &c.—we must learn the exact and inexact sciences—the NATURE OF THINGS. A good education, then, is a happy combination, or a just proportion, of learning and knowledge—or, in other words, of literature and science.—The proportion must vary, no doubt, according to the destination of the individual.

Greek and Latin.—I venture to doubt the policy of employing one-tenth, or more, of our short span of existence, in the acquirement of two dead languages, which we are forced to abandon almost immediately after they are learned, and before we can do much more than view, at a distance, the fruits which they display. * * * To the multitute, indeed, the dead languages are very nearly a dead loss—and for this good reason, that their avocations and pursuits through life prevent them from unlocking the magazines of learning, to which those languages are merely the keys. * * * What is the difference, as respects the individual, between the study of an original author, and a good translation? I very much doubt whether the results would be dissimilar in kind, or perhaps even in degree.

Female education is more detrimental to health and happiness than that of the male. Its grasp, its aim, is at accomplishments, rather than at acquirements—at gilding rather than at gold—at such ornaments as may dazzle by their lustre, and consume themselves, in a few years, by the intensity of their own brightness, rather than those which radiate a steady light till the lamp of life is extinguished. They are most properly termed *accomplishments;* because they are designed to accomplish a certain object—MATRIMONY. That end, or rather, beginning, obtained, they are about as useful to their owner as a rudder is to a sheer hulk, moored head and stern in Portsmouth harbor—the lease of a house after the time is expired—or a pair of wooden shoes during a paroxysm of gout.

Music.—Every thing that merely delights the *senses*, without the *understanding*, must come under the head of *sensual* gratifications, which tend, by their very nature, to excess. Music, like wine, exhilarates in small quantities, but intoxicates in large. The indulgence of either beyond the limits of moderation is dangerous. * * * If some of that time which is spent on the piano, the harp, and the guitar, were dedicated to the elements of science, or, at all events, to useful information, as modern languages, history, astronomy, geography, and even mathematics, there would be better wives and mothers, than when the mind is left, comparatively, an uncultivated blank, in order to pamper the single sense of hearing!

SAYINGS OF WISE MEN.

He is the best friend who has not occasion to put other people's hands to the ends of his own arms.—*Rousseau.* There is nothing more true than that what we do by ourselves, is always done in a more satisfactory manner than when it is done by others.

He whose expenditures exceeds his revenues must be poor; but he must be rich who receives more than he disburses.—*La Bruy*

He who has gotten a good son-in-law has found a son; but he who has met with a bad one has lost a daughter.—*French.*

He who swallows up the substance of the poor, will find, in the end, that it contains a bone to choke him.—*French.*

He who gives away his entire property before his death, purchases much suffering (deep regrets) for himself.

That which makes us so discontented with our own condition, is the false and exaggerated estimate we are apt to form of the happiness of others—*Fr.*

What orators fail in, as to *depth*, they make up to you in *length*.—*Montesquieu.*

What is earned by the flute is spent on the drum.—*Fr.* Money earned with little labor is generally spent with little consideration.

He who has offended you will never pardon you.—*Ital. prov.* Many persons feel an irreconcilable enmity towards those whom they have injured.

He who bestows on you more attention than usual, either has deceived you, or has the intention to do so.—*Ib.*

Men by doing nothing, learn to commit evil.—*Cato.* Idleness may be said to be the hot-bed of ignorance and evil.

It belongs to our nature to err, but it is the part of a fool to persevere in error. The mind of the wise man, therefore, is ever open to conviction, and when he discovers himself to be in an error, he displays true wisdom by receding; while the fool, ever obstinate and pertinaceous, continues to act on false principles, which he is ashamed to retract.

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ARTICLES.	New-York. Aug. 19.	Boston. Aug. 16.	Philadel'a Aug. 14.	Baltimore. Aug. 16.
Beans white, bush.....	2 00.. 2 25	1 37.. 1 75	1 37..1 62	1 25..1 50
Beef, best, cwt.....	6 00.. 7 50	5 00.. 7 50	6 00..8 00	7 50..8 00
Pork, per cwt.....	9 00..12 00	8 00.. 9 00	8 00..11 00	6 00..7 50
Butter, fresh, pound, ...	18.. 22	20.. 25	10.. 14	20.. 25
Cheese, pound, ...	8.. 13	9.. 13	10.. 11	9.. 10
Flour, best, bbl.....	9 00.. 9 25	9 00.. 9 25	8 75..9 50	8 00..9 50
GRAIN—Wheat, bushel, ..	1 30.. 1 70	.....	1 85..2 00	1 50..1 65
Rye, do. ..	85.. 38	1 00.. 1 05	1 00..	.. 65
Oats, do. ..	.. 75	75.. 78	58.. 60	38.. 40
Corn, do. ..	1 04.. 1 06	1 03.. 1 12	1 06..1 10	1 00..1 04
SEEDS—Red Clover, lb...	13	13.. 14	9.. 11	7½.. 8½
Timothy, bushel,.	2 50.. 2 75	2 75.. 3 00	1 85	3 50..4 00
WOOL—Saxony, fleece, lb.	75.. 80	65.. 70	65.. 73	40.. 50
Merino, lb..... .	50.. 68	40.. 65	40.. 62	25.. 40
1-4 and com. lb...	40.. 60	40.. 45	40.. 44	20.. 30
Sheep, ...	2 50.. 5 00	1 67.. 3 00		
Cows and Calves,.....	22 00..42 00	23 00..42 00		0 00..40 0
Cotton,.....	7.. 12	....	9.. 12	10.. 12

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